# Fiscal Year 2010 Specialty Crop Block Grant
# Final Report
# Agreement Number 12-25-G-1090

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**TITLE: ODA-001 Grant Administration, Outreach and Coordination – Final Report (Approved 2/20/2013)**

**PROJECT SUMMARY**

The Specialty Crop Block Grant Program (SCBGP) is an important program for Oregon. With more than 200 crop types and greater than 60% of the agricultural farm gate value from specialty crops, specialty crop markets constitute a large portion of Oregon's economy. When you also take into account the fact that majority of Oregon's 40,000 farms are small to medium sized, you begin to realize the complexity of Oregon agriculture. The SCBGP has been of huge value in supporting Oregon's diverse and complex agricultural economy.

In order to provide the necessary support to the specialty crop industry, back in 2010 the Oregon Department of Agriculture (ODA) decided to use a portion of the funds to hire a full time SCBGP Coordinator. The SCBGP Coordinator is responsible for all aspects of Oregon's SCBGP, including:

> *Coordination:* The SCBGP Coordinator is responsible for all grant contracts, reports to USDA, documentation, and grantee performance reporting and monitoring. Progress and financial reports submitted by the subgrantees to ODA are one of the tools that SCBGP Coordinator uses to monitor the projects. Reports are used to ensure that work is completed within the required timeframe, ensure that the funds are used only for activities covered by the approved project, and ensure that grant funds supplement rather than replace State funds.
>
> The SCBGP Coordinator develops and manages a database and analyzes the data for tracking to be used for documentation of grant outcomes and accomplishments. The data is compiled into summary reports required by the USDA.
>
> The SCBGP Coordinator coordinates with representatives of Oregon's specialty crop industries to enhance the development of meaningful, coordinated, productive projects that yield a measurable marginal return to the bottom line of Oregon agriculture.
>
> *Outreach/Training:*
> SCBGP Coordinator conducts outreach and trainings for potential recipients interested in program regarding the criteria for development and implementation of effective grant projects. SCBGP Coordinator holds statewide training/listening sessions, with additional statewide travel on an as needed basis.
>
> SCBGP Coordinator provides technical assistance to potential applicants (concept proposal phase), to those invited to submit applications (grant proposal phase) and to

those applicants approved by USDA subgrantees. Statewide trainings are held in the fall and winter and for those not able to attend, webinars of the trainings are held to inform applicants about the program, train applicants on how to apply, and train subgrantees on the best practices for reporting.

**ACTIVITIES PERFORMED**

The Oregon Specialty Crop Block Grant Program (SCBGP) has improved markedly since having hired a full-time employee to facilitate the program. The addition of this employee to ODA's Marketing and Business Development Division has in turn further increased the competitiveness of Oregon's specialty crops. All program support materials are filed as hard copies and electronically at ODA.

*FY2011 Outreach*

Outreach activities for the FY2011 process began in fall of 2010. The outreach approach for FY2011 was focused both narrowly and broadly. In order to ensure high quality applications from industry leaders, key one-one meetings with agricultural professionals across the industry were held.

To encourage a broader pool applicants, the Program Coordinator held six two-hour specialty crop grant program workshops in six locations throughout Oregon: La Grande, Hood River, Portland, Aurora, Albany, Central Point. To promote the workshops, the ODA sent out a press announcement; purchased paid placement in the largest local agricultural publication, the *Capital Press;* sent out emails to their listserv and other key agricultural organizations; and asked key agricultural organizations to post information about the workshops on their websites, e-newsletters and social networking sites.

For the workshops, we received about 90 RSVPs and had approximately 65 attendees. Attending the workshops were a range of individuals from small growers, to directors of associations, to commodity commissions, to farmers market managers, to farm to school coordinators. Perhaps the most promising aspect of these workshops was the fact that a majority of the attendees had not applied to the program before and many of the attendees fall into the USDA's target area of new and beginning farmers and socially disadvantaged farmers.

Presentations to key groups about the program have also helped to raise general awareness. Some examples of presentations include presentations to the Northwest Food Processors Associations technical team (~20 people), Farm Bureau (100-150 people), the Oregon State Board of Agriculture (10 Directors, 20 audience members).

On December 14, 2010 the SCBGP Advisory Board convened to review and refine the program policies and priorities, and to prepare for the FY2011 competitive process. Based on the feedback from the state-wide workshops, the Advisory Board determined that the program

priorities were set broadly enough to encompass all of the current Oregon priorities, so no changes to the priorities were made.

*FY2011 Implementation*
Below is a description of the activities for the FY2011 SCBGP.

The following schedule for the FY2011 SCBGP was finalized in December of 2010:

| Phase I – Concept Proposal | |
|---|---|
| Feb 15 | Subgrantee concept proposals due |
| Feb 28-Mar 10 | Review external concept proposals |
| Mar 15, 10am-3pm | Discuss external concept proposals |
| Mar 15 , 5:00pm | Internal concept proposals due |
| Mar 28-31 | Review internal concept proposals |
| Apr 1, 1:30-2:30pm | Director to make final decisions about invitations to submit grant proposals |
| April 1 | Invite external & internal applicants to submit grant proposals |
| *Phase II – Grant Proposal* | |
| April 13-May 6 | Review external & internal budgets |
| April 20 | Training/webinar |
| May 16, 12:00pm | External grant proposals due |
| May 25 | Internal grant proposals due to Gary |
| May 27 | Internal grant proposals due to Katie |
| May 18-31 | Review external & internal applications |
| Jun 6, 1:30-2:30pm | Director to make final selection decisions on external & internal applications |
| June 15, 9:30-11:30am | Present decisions to advisory board |
| Jun 16-17 | Invite external applicants into state plan |
| Jun 20-30 | Prep state plan |
| Jul 1 | Submit state plan |
| Jul 13 | State plan final due date |

In January of 2011, the Oregon Department of Agriculture (ODA) began its two-phase competitive grant process by announcing the pending available $1.6 million in funds for Oregon's FY2011 Specialty Crop Block Program. Trainings for the concept proposal phase had been conducted during the FY2011 statewide outreach.

Ongoing technical assistance was provided to potential applicants throughout January and February, prior to the February 15, 2010 concept proposal application deadline.

By the February 15, 2011 concept proposal deadline, 54 concept proposals were received (representing about $3.3 million in funding requests). For 26 of the 54 entities applying, this is the first year they had applied to the program. Participation from new organizations was largely contributed to the statewide outreach efforts.

Packets were mailed to the SCBGP advisory board for their review on February 26, 2012. The SCBGP advisory board reconvened on March 15, 2011 to discuss their scores and make recommendation for the FY2011 accepted concept proposals. The recommendations were discussed with the ODA Director Katy Coba and those selected to submit grant proposals were announced on April 1, 2011.

Upon the recommendation of the USDA SCBGP Coordinators, the ODA SCBGP Coordinator attended a week-long training from Management Concepts titled "Subawarding for Pass-Through Entities: Designing Accountable Programs, Selecting Subrecipients, and Monitoring Subgrants." This training was extraordinarily helpful in helping the ODA SCBGP Coordinator better perform her job.

Selected applicants submitted full grant proposals by May 16, 2011 for a second round of evaluation. An ODA technical team reviewed and scored the grant proposals. On June 6, 2011 scores were reviewed with ODA Director Coba. Selection recommendations were made to the SCBGP advisory board and applicants were invited into Oregon's state plan on June 17, 2012.

On August 30 and 31, 2011 a site investigator from the United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS) conducted a review of Oregon's Specialty Crop Block Grant Program (SCBGP). The overall objective of the site visit was to review Oregon Department of Agriculture's (ODA) compliance with the Grant Agreements entered into between the USDA AMS SCBGP and the ODA. The site visit went exceedingly well and the site visit investigator was very complimentary of Oregon's program organization, project monitoring and financial monitoring.

On September 29, 2011, the USDA approved and funded Oregon's fiscal year 2011 SCBGP application for a total of $1,724,046.73 to 24 projects aimed at boosting the competitiveness of the state's specialty crops.

The ODA funded projects that ranged from supporting local growers to gaining access into Asian markets.
A few examples of local projects include:

- A $45,200 grant to Adelante Mujeres, a Forest Grove-based organization, to help low-income - Latino producers reach consumers through the Forest Grove Farmers' Market.
- Another regional effort is a project by the Gorge Grown Food Network, which is receiving $23,448 to provide vegetable growers in the Columbia Gorge with hands-on classes and workshops to help them lengthen the growing season.
- In Southern Oregon, a group called THRIVE will connect consumers with beginning growers in the area through targeted education and outreach centering on a new online farmers' market, thanks to a grant of $51,786.

A few examples of projects related to export include:

-The Curry Soil and Water Conservation District is receiving $90,000 to manage the cranberry export project.

- The Oregon Raspberry and Blackberry Commission is receiving $53,362 to oversee the industry's promotional campaign.

- Another export related project is a $91,900 grant to Certified Onions, Inc. to promote a voluntary food-safety testing program used by about 90 percent of the Treasure Valley's onion growers in Eastern Oregon. Certified Onion received a grant last year to expand the testing and certification program.

Two mandatory webinar trainings the week of October 10-14, 2011 to cover, monitoring and compliance were held for all subgrantee partners funded through the FY2011 SCBGP. The webinar medium provides an excellent format to reach organizations throughout the state and will be used for all trainings going forward.

Back in August the USDA Site Visit investigator recommended that the ODA SCBGP Coordinator do more active monitoring and to start conducting site visits. The site investigator mentioned that the site visits did not need to be rigorous project and documentation review, but instead more informal in-person contact with the subgrantees. The thought was that more active monitoring would encourage better project health and provide a deeper relationship with the projects.

Based on the site investigator's feedback, the SCBGP Coordinator made a concerted effort to attend meetings with subgrantees and in October and November 2011 she has met with the following subgrantees: Oregon Hop Commission, Oregon Sweet Cherry Commission, Ecotrust, Oregon State Beekeepers Association, Blue Mountain Horticultural Society, Curry Soil and Water Conservation District, Oregon Potato Commission.

Overall the SCBGP has been very successful and continues to improve. Below are a few lessons learned:

With broader statewide outreach, the program saw applications from a number of new participants, which was positive. However, the quality and impact of several of the new proposals was lacking. The advisory board felt that they could clearly see an improvement in the quality of the writing of the proposal, but they also felt that there wasn't strong enough participating from some of Oregon's most influential specialty crop organizations. Based on the feedback from the advisory board, the SCBGP Coordinator did not conduct statewide presentations for FY2012, and instead to support more targeted outreach and to begin site visits for existing subgrantees. To meet the needs of the broad outreach, the public was encouraged to attend the USDA SCBGP program outreach webinar, which was held on December 15, 2011, and a webinar for Oregon's program will be held on January 20, 2012. The goal of the outreach

is to encourage the highest quality participation from a vast range of Oregon specialty crop organizations and businesses. Because the ODA SCBGP Coordinator needs to remain neutral, attention was focused on supporting the ODA's Agricultural Development and Marketing Division team to provide technical assistance related to key industry leaders.

Another lesson learned/issue was that extremely targeted outreach to a specific industry can backfire and instead of creating high quality cooperative proposals you can instead inspire competing proposals. This issue arose when the SCBGP Coordinator conducted a presentation to all of the Oregon wine American Viticulture Areas. From that presentation, the program received over six wine applications, many of which were narrowly focused and uncoordinated.

As the SCBGP continues to grow, so do the number of active projects and therefore the workload for the SCBGP Coordinator. The SCBGP Coordinator has also shifted her monitoring to more active monitoring by conducting site visits to active subgrantees. With the increase in workload and the shift to better developing the monitoring program, the SCBGP Coordinator had to put some of the program activities on the back burner. Those activities include program analysis, the development of a program priority survey, and a more comprehensive in-person outreach program. The SCBGP Coordinator was able to prioritize these activities for the FY2012 funding cycle. The SCBGP Coordinator has worked with the advisory board to improve program efficiencies, which included reducing the project reporting to twice a year instead of four times per year.

**TITLE: ODA-002 Specialty Crop Lab ISO 17025 Accreditation Project – Final Report (Approved – 02/07/2014)**

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**PROJCT TITLE:** Specialty Crop Lab ISO 17025 Accreditation Project

## PROJECT SUMMARY

The global marketplace continues to experience a wide variety of food quality and safety incidents. At the same time, specialty crops from Oregon are having increasing competition in their marketplaces. In the context of increasingly multinational and interconnected agricultural trade and growing competition, the days of misunderstood requirements is over; the time for official certification that meets or exceeds global standards is here.
The need for official certification that meets or exceeds global standards continues to be of utmost importance in the multinational and interconnected agricultural trade world for Oregon onions, potatoes, blueberries, cherries, and pears. One tool to gain advantage is to supply documentation of product quality with laboratory results. An ISO (International Organization of Standardization) accredited laboratory will provide added credibility to the ODA certifications related to Oregon's specialty crops.

The Oregon Department of Agriculture's Maximum Residue Level (MRL) project focuses on the identification of specialty crops: onions, potatoes, blueberries, cherries and pears as the primary area of effort related to residue analyses under scope for ISO accreditation.
This proposal allowed steps to be taken along the path towards ISO 17025:2005 Accreditation with the development of management practices and standard operation procedures compliant with ISO requirements.

## PROJECT APPROACH

-Development of quality management system meeting ISO17025:2005 standard and the accrediting body (A2LA:American Association of Laboratory Accreditation) September 2013: a draft of the quality manual was developed, many standard operating procedures were developed and implemented related to quality management system and technical processes.
-Training on change for key staff members (Lab manager, QAO, Level 3 analysts) January 2013: All staff received change management training in December 2012.
-Training of staff on internal auditing and root cause analysis as part of ISO17025:2005 continual review and improvement processes. June 2013: Key staff received training on root cause analysis in April 2013.

A dedicated quality assurance officer position was hired and is working with laboratory manager in developing aspects of the quality management system and supporting standard operation procedures. Training of staff on ISO concepts to assist with writing, reviewing and implementing ISO requirements. ISO accreditation requires increased documentation and tracking or processes which the laboratory's current LIMS Laboratory Information Management System, does not facilitate well and processes will need to be developed with other available software, ie EXCEL or purchase of off the shelf product, ie. Paradigm3.

The items below were unable to be completed since the last two are related to the first. A pre-audit requires that the entire quality management system be in place, that all documentation is defined, developed and available; all staff trained to follow all procedures as written and maintain all documentation. In short we have identified and said what we do and are able to show what we said we do. Steps were taken towards the identifying, developing and implementing all needed to meet the ISO requirements. The foundations have been laid. Portions of the quality management system have been developed and documentation is building in support, some standard operating procedures have been written and are being implemented. Documentation is being collected. Revisions are and have been made after living the process, so the training on the revisions is taking place, and implementation of the revisions then occurs. This process is very time consuming, we have been told it is a 5 year process. Work continues on completing the quality management system, all supporting standard operating procedures, documentation and implementation with additional funds from another funding source. We expect to apply for accreditation by year's end, December 2014.

-Pre-audit of quality management system conducted by third party. August 2013: has not been completed.

-Corrective actions completed from pre-audit. September 2013: has not been completed

-Application submitted to A2LA for laboratory audit. September 2013: has not been completed.

Time to develop, implement, adjust and improve processes while continuing with routine work is difficult. The laboratory also experienced some staff changes during the time of this project delaying full completion of project.

**GOALS AND OUTCOMES ACHEIVED**

Laboratory staff have worked on developing and implementing standard operating procedures (SOP) related to pesticide residue analyses. Once an SOP has been approved there is a transition period while it is implemented, this has required increased documentation facilitated by forms to capture data.

Periodic review of documents to assure compliance with ISO requirements has resulted in revisions of some SOPs to more fully meet requirements. Analysts have participated in required

proficiency testing program provided by an ISO approved vendor as one means of demonstrating competency.

The Quality Management manual has been nearly drafted stating the process by which the laboratory will meet the ISO requirements and perform work under the scope of accreditation.
50% of the supporting SOPs have been drafted and are being implemented.
Staff received training in change management since implementing a major change is often difficult for some individuals.
The laboratory will be requesting accreditation in October 2014.

**BENEFICIARIES**
Clients of laboratory services are the beneficiaries of analyses. The laboratory has provided testing to Oregon onion, potato and blueberry industry during this grant.
Onions have been submitted for multi-residue screens for 3 growing seasons with average of 250 samples tested for various pesticide screens to meet domestic and international needs.
Potatoes have been sporadically submitted for testing, averaging 10 samples per year.
Blueberries were submitted from 3 of 9 producers for testing to meet Korean import requirements in 2012. No samples were tested in 2013 since not required by Korea.
The submittal of samples is not in the laboratory's control. The laboratory works with the department's Commodity Inspection staff to meet the industry need. It is anticipated that the need for testing will continue and grow to include other commodities, however some of the growth is driven by economic conditions.

**LESSONS LEARNED**
The time to implement a comprehensive quality system meeting ISO17025:2005 is labor and time intensive, far more than originally anticipated. However, much progress has been made in the last year after the foundation of knowledge related to ISO accreditation had been laid. Time must be spent living the process and making adjustments to be compliant. One change may impact in multiple places and staying on top of such events requires staff time.

The delay in the ability to hire a dedicated quality assurance officer at the beginning of the project resulted in an immediate inability to progress at the rate indicated in the plan approach. Work was attempted by having the lead chemist try to achieve at same time trying to produce analytical work, this did not work. Therefore it became very clear that to be at all successful a dedicated quality assurance officer is required. The position was filled by an internal staff (lead chemist) this then lead to a hole in lab's analytical capacity so there was a longer transition as that vacancy was filled than if an external candidate had been hired. However the positive side is the individual knows the lab's processes.

The amount of time for staff to become comfortable with the concepts and truly buy into the new way of doing business is somewhat unknown. The change management training was very helpful in opening dialogue up amongst staff to foster the process.

As the lab has been living the changes it was apparent that there was a need for more dedicated staff to assist in development of forms, inputting QC data into spreasheets, performing QC tests, etc was needed. A labortatory technician was hired in August 2013 to assist in this regard.

A quality management system meeting ISO requirements requires much tracking such as staff training, document control, corrective action progress, preventative action progress, equipment validation and maintenance. This tracking is difficult without a good process or system. The laboratory plans on purchasing off the shelf systems to support these tasks.
The laboratory has worked with other department of agriculture labs who have already become accredited and will continue to build those relationships and learn from their experiences. Information garnered from others has been very helpful and encouraging.

The time to develop and implement an ISO compliant quality management system, we have learned from others is 3-5 years and may take even longer.

**TITLE: ODA-003 Sampling Critical Control Points Within Nurseries Participating in the Grower Assisted Inspection Program – *Final Report (APPROVED 1/30/12)***

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## PROJECT SUMMARY

The voluntary Grower Assisted Inspection Program (GAIP) was developed to help nurseries combat Phytophthora diseases, including the federally regulated P. ramorum. In the GAIP, nurseries adopt best management practices (BMP) to address critical control points (CCP) where Phytophthora can be introduced into their production system. The goal of this project was to collect and test samples from specific CCP to determine where Phytophthora may continue to be introduced. The nurseries could then use that information to adjust their BMP as needed to better mitigate Phytophthora at those CCP. The data from this study will be combined with data from other studies on systems approaches in a petition to the USDA APHIS to accept programs like the GAIP as an alternative to the existing P. ramorum federal regulations (7 CFR 301.92) for nurseries that ship stock interstate.

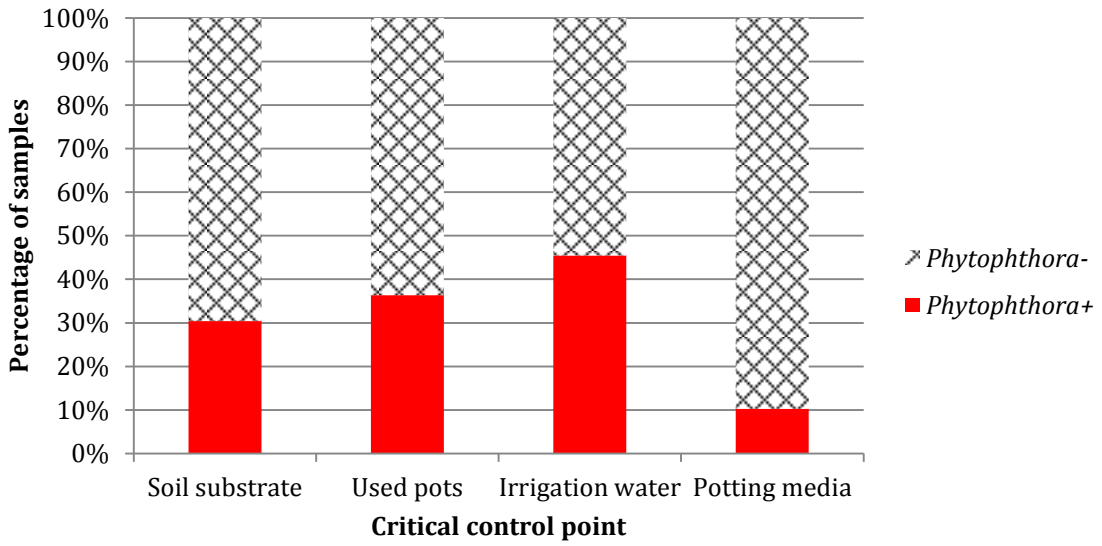
The USDA APHIS is currently considering the GAIP or a similar program as a potential alternative to the mandatory annual P. ramorum certification required for nurseries to ship plant stock interstate. There is great interest within the regulatory community to move towards a systems approach program for the interstate and, eventually, international shipment of all nursery stock. The US is a member of the North American Plant Protection Organization (NAPPO) and, as such, is a signatory to RSPM No. 24 "Integrated Pest Risk Management Measures for the Importation of Plants for Planting into NAPPO Member Countries". This standard mandates NAPPO member countries develop an audit-based, systems approach to pest management for facilities producing plants for planting before those facilities will be allowed to ship plants internationally. The deadline for implementation of this standard is set at 2014. Data from studies like this provide a sound scientific basis for standards such as RSPM No. 24 and for federal quarantines such as 7CFR301.92.

## PROJECT APPROACH

All objectives originally set forth in the project have been achieved. As outlined in the project proposal, samples were collected from four CCP (irrigation water, soil substrate, used pots, and potting media) from 13 nurseries that are participating in the GAIP program. All samples were tested for the presence/absence of Phytophthora using USDA APHIS-approved methods, with Phytophthora identification to genus-level only. The BMP adopted by the nurseries to address these CCP were also determined. By collating all of the test results, we were able to identify which of the four CCP was the most likely source of introduction of Phytophthora to the

nurseries. When looking at the percentage of samples testing positive for Phytophthora, irrigation water was the greatest risk to nurseries (Figure 1). When looking at the number of nurseries with Phyophthora present in at least one sample at a CCP, soil substrate and irrigation water were the most likely sources of contamination (Figure 2).

**Figure 1.** Percentage of samples collected from GAIP nurseries that tested positive for *Phytophthora* at four critical control points.




By comparing the test results to the BMP adopted by the nurseries, we were also able to identify those BMP that seemed to provide the greatest risk mitigation for the nurseries. For example, the source of the irrigation water was critically important to the detection of Phytophthora spp. in the water (Figure 3). The target organism was never detected from well water, although there was a >50% chance of detecting it in river or pond water. This showed that nurseries with BMP in place to deal with the Phytophthora populations in the latter two water sources (e.g., chlorination, ozonation, heat) were on much better footing than their counterparts that didn't treat. Those nurseries using well water reported no problems.

**Figure 2.** Percentage of nurseries with a *Phytophthora*-positive sample from each critical control point.

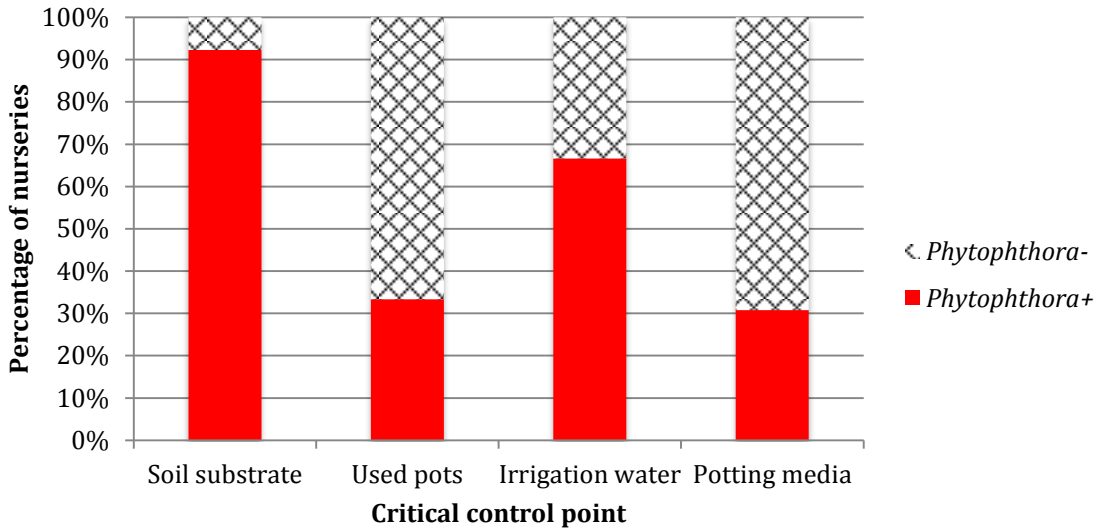
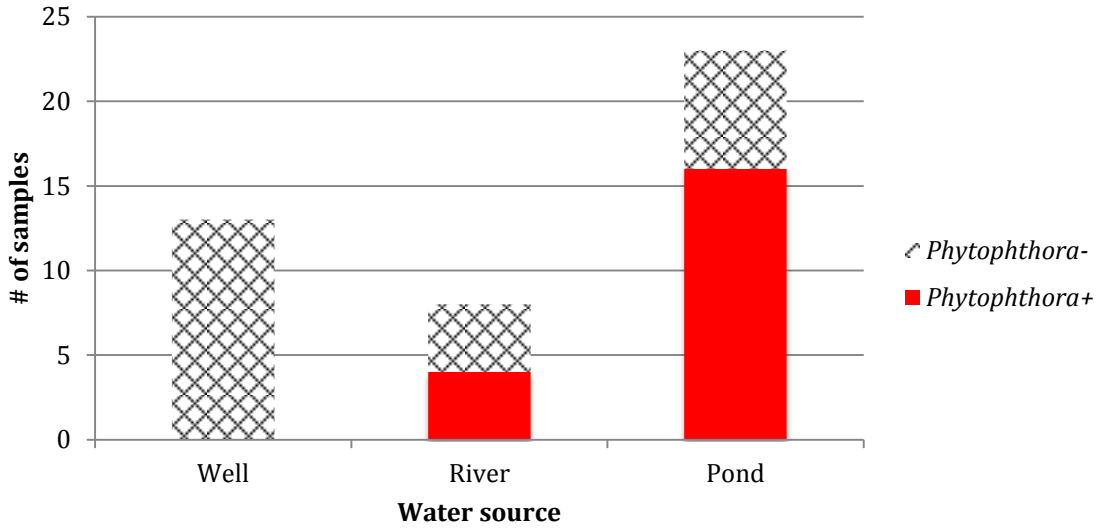



**Figure 3.** Number of samples testing *Phytophthora* positive by water source.




For the other CCP, it was determined that storing potting media on a concrete pad or another non-permeable barrier helped prevent contamination of the media by Phytophthora. No positive potting media samples were found at nurseries using dedicated or regularly cleaned equipment in

combination with storage on a concrete slab. However, using dirty equipment could still contaminate the potting media even if the media were stored on a concrete slab.

The results from the used pots CCP indicate that properly pasteurized pots presented no risk of Phytophthora contamination. For the soil substrate, there was an ever-present population of Phytophthora in the soil. Any activities to reduce inoculum load or adversely affect Phytophthora's ability to survive in the soil was beneficial in terms of risk mitigation.

Once the test results from a nursery were complete, an individual nursery report was prepared and shared with that nursery to describe their specific results in relation to their BMP. Once test results were completed for all nurseries in the study, the data was combined, analyzed, and a written report summarizing the results shared with each of the project participants. This final report was also shared with the USDA APHIS' National Program Director and Western Region Director for the Phytophthora ramorum program to help facilitate discussion using the GAIP or similar program in lieu of the existing federal certification program for P. ramorum.

The ODA worked with the Oregon State University Extension Service to present a series of bi-lingual workshops on Phytophthora disease management to GAIP participants and the nursery industry. This series of workshops covered the following topics:
Workshop #1: Biology and seasonal activity of Phytophthora,
Workshop #2: Cultural control for pest prevention 1 – Sanitation,
Workshop #3: Cultural control for pest prevention 2 – Scouting,
Workshop #4: Water management, and
Workshop #5: Media, substrate, containers, and best management practices summary.
Funding for these workshops was provided by another source.

**GOALS AND OUTCOMES ACHIEVED**

All sample collection and testing was completed at the 13 nurseries participating in the study as described in the original project proposal. Once testing was complete, each nursery was issued an individual nursery report describing the results in relation to their adopted BMP for the four CCP targeted for sampling in this study. At the conclusion of all testing, a final report combining and analyzing the test results across all nurseries in the study was prepared and shared with the nurseries and with USDA APHIS.

All objectives and goals set forth within the original project proposal were met.

A timeline describing the progress towards and completion of goals as outlined in the project proposal is presented below:
*First quarter (Nov. 1 – Jan. 31, 2011)*
Developed the sampling protocol for the study and verified testing protocols used for all samples.

Held a meeting with participants in the study on December 7, 2010, to apprise them of the purpose and goals of the study.
Began sample collection from participants in January. Samples were collected from three of 13 nurseries.

*Second quarter (Feb. 1 – April 30, 2011)*
Completed sample collection from all nursery locations participating in the GAIP.
Completed testing on all samples received.
Issued individual laboratory reports to nurseries on results as each test was completed on the samples received.

*Third quarter (May 1 – July 31, 2011)*
Compiled the test results for each nursery into a single report for each nursery. The individual nursery reports explained the test results to the participants and included recommendations on changes to their BMP if needed.
While auditing the nursery locations participating in the GAIP, the nursery auditor also discussed the individual nursery reports and any recommendations for changes to BMP.
Developed an Excel spreadsheet to collate the data and conduct data analyses to compare the results within and between grower locations. Began inputting data into that spreadsheet.

*Fourth quarter (August 1 – Sept. 14, 2011)*
Completed entering data into the Excel spreadsheet and completed statistical analyses of that data.
Prepared final report summarizing the results across all nurseries, including determining the effectiveness of specific BMP adopted by the nurseries for the CCP checked.
Issued copies of that final report to the nurseries that participated in the project and to the USDA APHIS National Coordinator and Western Region Coordinator for the federal Phytophthora ramorum program.

**BENEFICIARIES**
The primary beneficiaries for this study were the nurseries participating in the GAIP. However, the data produced will also prove helpful to other members of the nursery industry in that it clearly demonstrates the risk of introducing Phytophthora at certain CCP within the nursery and the BMP that successfully mitigate those risks. The USDA APHIS will also benefit from receiving this information in that it will aid them in their decision process regarding the move to systems approaches for nursery stock.

The Oregon nursery industry currently exports about 75% of the plants produced. Of that 75%, over one-third of the nurseries must meet the federal requirements as outlined in 7CFR301.92 prior to shipment. Should the GAIP or a similar program be approved as an alternative to the federal certification program for P. ramorum, that represents a potential impact of $270 million

(based on latest economic data from the 2010 Oregon Agripedia). Besides the impact on exports, programs like the GAIP also provide additional benefits to the nurseries in the form of healthier plants with fewer culls, a reduction in other pest and disease problems, and reduced labor and other costs associated with pest and disease management. These benefits are extremely difficult to quantify, although several nurseries in the GAIP reported them as significant.

**LESSONED LEARNED**

It is very important with this type of project to get buy-in from the participants. This is even more important when you start talking about a program that has potential implications for a quarantine pathogen like P. ramorum. This is best achieved through face-to-face meetings or teleconferences with all participants present.

The results achieved were as expected. Most significantly, the results reinforced the concept of CCP and how important it is to have BMP in place to address those. This is the type of information the nurseries look for to help justify positive changes to their production practices.

**TITLE: ODA-004 Export Compliance and Market Access Program for Oregon Christmas Trees – *Final Report (APPROVED 1/30/12)***

**CONTACT:** Patrick Mayer, Oregon Department of Agriculture
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## PROJECT SUMMARY

The ODA intended to develop a program to address export compliance and market access issues for Oregon Christmas trees and related products. The main goal was to work with the industry and key contacts in target markets to develop a voluntary Export Best Practices program for exporting Christmas trees. By providing hands-on technical guidance and support as necessary, the ODA hoped to ensure successful shipments and avoid costly rejections or clearance delays, increasing sales and acceptability of products in end-user markets.

## PROJECT APPROACH

No activities have been performed on this grant. The activities will not move forward and the funding will not be used for the project as submitted.
After approval of this project, it was learned that the Plant Division of ODA was also successfully awarded a separately funded grant to execute much of the same work originally proposed in this Specialty Crop grant. In order to avoid duplication of efforts and better utilize limited resources, we will not pursue this project at this time.
No funding has been expended to date on this project. The Oregon Department of Agriculture expects to submit an amendment to the state plan to utilize these funds in another area.

## GOALS and OUTCOMES ACHIEVED

Because no work was done on this project, the outcomes and goals were not achieved.

## BENEFICIARIES

Because no work was done on this project, the potential beneficiaries were not reached.

## LESSONS LEARNED

Because no work was done on this project, there were no lessons learned. The ODA plans to utilize these funds by writing a new project.

**TITLE: ODA-005 Integrated Farm to School and School Garden Pilot Programs – *Final Report (Approved 2/20/2013)***

**CONTACT NAME: Michelle Markesteyn Ratcliffe, Oregon Department of Agriculture**
**PHONE: 503.872.6620**
**EMAIL: mmarkesteyn@oda.state.or.us**

## PROJECT SUMMARY

The school food market presents an emerging market for Oregon specialty crops, and fruits and vegetables in particular. Every school year children in Oregon consume over 20,000 tons of fruits and vegetables in addition to center of the plate entrees that contain Oregon specialty crops. Farm to School programs connect local food producers with school food buyers.

While Farm to School programs are unique to the place and people who run them, they consist of a spectrum of activities that both serve up and celebrate our agricultural bounty. These programs connect local farmers and food processors with school cafeterias in preschools, grades K-12, and colleges. They include serving more Oregon agricultural products on the lunch line, and activities that directly connect youth to food production through activities such as school gardens and field trips.

This pilot program was designed to document the process and outcomes of integrated Farm to School and school garden programs at one large urban school district (Salem-Keizer with 40,206 students), and one small rural district (North Powder with 245 students). Students were exposed to specialty crops served up on the lunch line and promoted in the cafeteria and in the home through school menus and / or parent newsletters. Approximately 100 students at Salem-Keizer and 50 at North Powder were also to receive food and garden-enhanced education in school gardens. This project was not funded by another specialty crop block grant.

## PROJECT APPROACH

The **goal** of this *Integrated Farm to School and School Garden Pilot Project* was to increase amount of Oregon specialty crops served in schools. Project activities to ensure specialty crops are both served and eaten included: (1) Building and /or maintaining school gardens and integrated garden-based education, (2) Training adult garden volunteers, (3) Procuring, serving and promoting specialty crops in the school and community, and (4) Conducting quantitative and qualitative assessment. The remainder of this report section details activities performed.

*Project Kick-off*: On October 11th 2010, ODA Co-hosted a Farm to School media availability at Lesile Middle School in Salem-Keizer School District. The purposes of the event were to announce the new USDA Specialty Crop Block Grant for the Salem-Keizer and North Powder School Districts in conjunction with a kickoff for National School Lunch Week. As part of the day, our project partner Sodexo, the contract food service company that manages the Salem-

Keizer School District meal programs, also rolled out a "Locally Grown" campaign that included posters in the cafeteria and local signs on lunch line promoting Oregon specialty crops. During the media availability, public officials provided brief opening remarks, ate a local lunch in the school cafeteria, and broke ground in the school garden with youth.

Internal communications we generated in conjunction with the October 11th 2010 event include:
ODA's website posted Director Coba's speech with audio file
http://www.oregon.gov/ODA/do_sppech_101011.shtml
ODA News release Oct 11th http://www.oregon.gov/ODA/news/101011school_event.shtml
ODA story of the week http://www.oregon.gov/ODA/news/101006school.shtml
ODA website banner

Media received from October 11th 2010 event includes:
Capital Press, *Farm-to-school efforts take root in two districts*
http://www.capitalpress.com/orewash/ml-farm-to-school-101510-art
*Students grow food for their own schools' lunch lines* (Statesman Journal)
http://www.statesmanjournal.com/article/20101029/NEWS/10290344/Students-grow-food-for-their-own-schools-lunch-lines#ixzz15vkfjVJn
*School Lunch Gets Healthier Hands On* (Statesmen Journal column)
http://www.statesmanjournal.com/article/20101014/COLUMN0702/10140316/1096/COLUMN
*ODA Celebrates National School Lunch Week* 104.1 The Peak
http://www.mycentraloregon.com/news/local/1302673/ODA-Celebrates-National-School-Lunch-Week.html
*Sodexo Showcases Food Grown and Produced in Oregon with Locally*-Sourced Lunch at Salem-Keizer Public Schools PR Newswire **http://www.prnewswire.com/news-releases/sodexo-showcases-food-grown-and-produced-in-oregon-with-locally-sourced-lunch-at-salem-keizer-public-schools-104733269.html**
Salem-Keizer School District's Website http://www.salkeiz.k12.or.us/inside24j/inside24j-october-13-2010/leslie-students-treated-farm-school-lunch

*School Garden Coordinators hired*: During the first quarter of this project we developed two Request for Applications (RFA), one for each of the two school pilot sites. We widely distributed the RFAs, scored returned applications, and held in person interviews with potential candidates. In early January 2011 both contracts with the School Garden Coordinators were fully executed and program planning began.

Since we had anticipated the school garden coordinators would have been placed sooner, we ended up needing to adjust the work plan timeline including planning, and purchasing of supplies and materials. Our delay in contracting with the garden coordinators was due to the length of time needed to go through the internal contracting process along with conflicting schedules of interviewees during the holiday season. Our project partners in North Powder School District

(community volunteers) and the Salem-Keizer School District (Salem-Keizer Education Foundation) continued to tend to existing gardens while making plans for a new one.

Once school garden contractors were hired, pilot project activities commenced rapidly. However, one school in Salem-Keizer that originally elected to participate chose not to continue as they had a separate community process that they wanted to pursue. Leslie Middle School was one of the schools that was originally in the program but decided to opt out and Houck Middle School replaced it. From this experience we learned that it is imperative for the School Garden Coordinator to have a letter of understanding/commitment that they present to the school. It should clearly define what the coordinator will do and what support they can offer the school. The school needs to understand what support they need to give to the garden program. Clarity up front will determine if it is the right time for the school to pursue a garden program.

Farm to school and school garden programs are now popular in Salem-Keizer School District such that there were more requests then the contractor was able to fulfill. To date, Salem-Keizer has expanded from the original 3 proposed gardens to 6 school garden programs and has successfully secured additional support and funding for those gardens.

Further, as originally proposed, we anticipated hiring a training consultant to train school garden consultants and community members in both districts. In working with the individual communities, the school garden contractors identified a preferred following a "train the trainer" model and wanted to attend a week long training entitled the *School Garden Certificate Training Program* offered through Growing Gardens in Portland, Oregon. Contractors participated in that intensive training and brought leanings back to their community.

Specific outputs from project activities in both North Powder (NP) and the Salem-Keizer (SK) school district included:

1. **Students learned about specialty crop production through school gardens and field trips.**
    a. 1 in North Powder (NP) school and 3 school gardens in Salem-Keizer (SK) and districts were built or revitalized.
    b. 1127 students in NP, and 95 students in SK were involved with planting, tending and harvesting specialty crops in the school gardens through before, during, and after school garden groups.
    c. NP - 3 students were hired as Farm Hands to assist Garden Manager in the tending, planting, and harvesting of the school garden from June 2011-Sept 2011. This job taught valuable skills in the specialty crop industry.
    d. NP - 47 Students went on field trips to local farms. North Powder is located in an Agricultural Community and these field trips are easily done.

e. NP - 1067 students participated in educational activities using specialty crops such as (1) Monthly tasting tables featuring Oregon grown fruits or vegetables, (2) Chef in the Classroom demonstration that utilized North Powder Garden produce and (3) the use of a dehydrator for classroom activities.
f. SK - Grant Community School install a courtyard garden that includes 11 raised beds 3' x 12' for vegetable production. A seat wall allows for a great opportunity for students to listen to their teacher give them garden-enhanced nutrition education. A 10' x 12' greenhouse allows for year round vegetable education and production. 14 additional 3' x 12' raised beds in a community garden provided by Salem Alliance Church allow us to double our vegetable production.
g. SK - Parrish Middle School has a 3,000 sq ft asphalt courtyard. In spite of the inability to be in the garden all summer due to construction, there is a container patio garden featuring edibles and ornamentals. Interest in using the outdoor classroom by the faculty has increase dramatically.
h. SK - Houck Middle School's greenhouse provided the students the opportunity to grow vegetables from seed for their own garden and food shares community gardens.
i. SK - Afterschool garden programs provided 83 students 1-3 hours of garden-enhanced learning each week. An additional 400 students walked through the courtyard garden each day and had 2 hours of garden-based education during Earth week.
j. SK - 37 students went on a field trip to 2 farms in June 2011. (55) 4th and 5th grade students went on a field trip to the Oregon State University's Organic Farm on Oct 27, 2011. (368) 1st-8th grade students and 25 adults went on a field trip to Willamette Valley Fruit Company Harvest Fest. 460 students experienced being on a farm. For many this was the first time ever being on a farm.

2. **Schools served specialty crops in the cafeteria**.
   a. NP - purchased 126 pounds of specialty crops costing about $382 from LaGrande Farmer's Market and Oregon grown produce from Umatilla County( Hermiston& Milton Free water). Produce included, peaches, plumbs, watermelons, cantaloupes, apples, peppers, and nectarines. Extra time was needed to travel 50 miles to Farmer's Market and procure items and all necessary paperwork for purchasing. In NP, the easiest specialty crops to procure were potatoes followed by watermelon. The biggest challenge was distribution.
   b. NP – 1,234 lbs of garden produce was also harvested from North Powder's School Garden. Of the 1,234 lbs of garden produce, 612 pounds were harvested in late August and September. Garden grown items included: tomatoes, onions, corn, beets, peppers, cabbage, and zucchini. They were all used in the school cafeteria either in the main course, or on the salad bar. If excess was a problem at the end of the week, efforts were made to donate produce to NP Food Bank, or local

families. Our average daily enrollment in September was 277. We had 15 serving days for a total of 2,694 meals that were served and featured Oregon grown specialty crops.

c. NP - sent 12 letters to local producers to encourage them to support our program, and solicited information on their product. Currently NP uses 10 different producers from the Baker/Union area and 3 producers were utilized from the Umatilla County area (Hermiston & Milton Freewater).
d. NP – 1,025 meals featuring Oregon specialty crops from the school garden were also served to the community at the North Powder's Annual Halibut Feed.
e. SK - purchased $12,695 in Specialty Crops from one of their two distributors. Total dollar amounts are still coming in from their other distributor. Specialty crops procured included: apples, beets, cabbage, carrots, celery, peppers, corn, cucumbers, eggplants, onions, spinach, mushrooms, parsnips, pears, potatoes, squash, lettuce, rutabagas, and turnips.
f. SK - 700 students were exposed to and sampled 8 different fresh Oregon grown vegetables at tasting tables.

**3. Specialty Crops were promoted in the schools and community.**

a. NP - 1,016 Specialty Crop Educational Materials were sent home to students' families.
b. NP - The North Powder School Garden Coordinator worked alongside staff weekly to incorporate supplemental activities that complemented the Harvest of The Month, and garden-based activities. The elementary students were easier to work with and more productive. The high school students needed more encouragement, and were not as enthusiastic as the younger kids. Staff lacked confidence in working in the garden and relied on the knowledge of the garden coordinator. Coordinated efforts were needed to make gardening successful with the use of students and teachers.
c. SK - School garden coordinator promoted the school gardens and after school programs at 6 schools. It is concluded that the elementary students are most receptive to joining the garden group and being excited to learn about gardening.
d. SK - School garden coordinator spoke to 23 students at Oregon State University Leadership training to inform them of, and engage them in, service learning opportunities in educating about and with Oregon specialty crops.
e. SK - 5 community beautification events and booths at a carnival and "fun run" brought awareness to the school garden projects and recruited more volunteers.
f. SK - 98 students planted a container garden with 3-4 vegetables and took it home to grow during the summer.

**4. Other community members supported the project**

a. NP - 56 volunteers assisted with the success of the garden. This number is down from last year, (about half) due to the fact that we relied on the use of our paid Farm Hands.
b. NP - 9 teachers were actively involved in our garden activities.
c. SK - 140 volunteers contributed 420 hours of community service to the planting of edibles and ornamentals in the school gardens and around the school yards. Training of adult volunteers was hands on and occurred on site.
d. SK - vendors in the landscape industry donated drip irrigation, planter boxes, paving stone, retaining wall block, plants, tools, seeds, etc in the amount of $3,700. Long term relationships with the vendors give the program sustainability.
e. SK - Salem Alliance Church donated raised beds and 90% of the space in their community garden. They also prepped the base for the greenhouse and removed 20 shrubs so the garden could be installed.
f. SK - Kiwanis donated a greenhouse.
g. SK - What others are saying - 3 quotes about the Salem-Keizer School garden programs
    i. "You have the most beautiful front yard of any school in the district." Sandy Husk, Superintendent of Salem-Keizer School District told Ralph Wisner, principal of Grant School. This was the result of students growing and planting flowers and edible shrubs around the front entry of the school. Nursery crops and landscaping really influences how students and their families interact with schools.
    ii. "Students are learning to respect adults and their courtyard garden by working with Brenda, the garden coordinator. Other than a few tomatoes found lying around, there has not been vandalism in the courtyard garden," stated Ralph Wisner, principal at Grant School.
    iii. The Grant community has benefited from the beautification of the school property as reported by neighbors, teachers and parent group expressing appreciation. One teacher said, "Thanks for what you are doing around the school. I have taught here for 14 years and this school has never looked this good." A student stated, "When the school looks nice it makes me happy!"

Both the SK and NP developed capacity for Farm to School and School Garden programming because of this project. In fact, they were so successful in Year 1 that they were selected in August 2012 to be FoodCorps Service Sites in Oregon. The Oregon Department of Agriculture acts as the Host Site for FoodCorps in Oregon. FoodCorps is a national AmeriCorps service program that places service members in service sites. As a result, these activities started under this grant will be sustained and enhanced past the project period.

Another proposed project activity was to **disseminate lessons from this grant to a variety of audiences.** We submitted an article about the project activities and brining together project partners with different goals under this grant to a peer-reviewed journal for publication. The article was published in Childhood Obesity's Special Issue on School Food. In the article, we clearly state that the development of the logic model started as part of a Specialty Crop Block Grant. The citation is:
Ratcliffe, M.M. 2012. *A Sample Theory-Based Logic Model To Improve Program Development, Implementation, and Sustainability of Farm to School Program* Childhood Obesity. 8(4): 315-322.

The special issue was funded by the Kellogg Foundation so it is free online at http://online.liebertpub.com/toc/chi/8/4. Since the publication was focused on childhood obesity, that is the lens we used to convey the importance of increasing the competitiveness of specialty crops through innovative farm to school programs. The article abstract is as follows:

> Farm to School programs hold promise to address childhood obesity. These programs may increase students' access to healthier foods, increase students' knowledge of and desire to eat these foods, and increase their consumption of them. Implementing Farm to School programs requires the involvement of multiple people, including nutrition services, educators, and food producers. Because these groups have not traditionally worked together and each has different goals, it is important to demonstrate how Farm to School programs that are designed to decrease childhood obesity may also address others' objectives, such as academic achievement and economic development. A logic model is an effective tool to help articulate a shared vision for how Farm to School programs may work to accomplish multiple goals. Furthermore, there is evidence that programs based on theory are more likely to be effective at changing individuals' behaviors. Logic models based on theory may help to explain how a program works, aid in efficient and sustained implementation, and support the development of a coherent evaluation plan. This article presents a sample theory-based logic model for Farm to School programs. The presented logic model is informed by the Poly-theoretical Model for Food and Garden-based Education in School Settings (PMFGBE). The logic model has been applied to multiple settings, including Farm to School program development and evaluation in urban and rural school districts. This article also includes a brief discussion on the development of the PMFGBE, a detailed explanation of how Farm to School programs may enhance the curricular, physical, and social learning environments of schools, and suggestions for the applicability of the logic model for practitioners, researchers, and policy makers.

## GOALS AND OUTCOMES ACHEIVED

The **goal** of this project was to increase the amount of Oregon specialty crops served in schools. While the schools did purchase some Oregon foods in 2009, they did not track purchases.

Therefore, the **benchmark** was considered zero. The **target** was to procure 15 tons of Oregon specialty crops. As originally proposed, school food services would track the number of pounds and county origin of Oregon specialty crops purchased.

One project delay we experienced was in collection of procurement data from the Salem-Keizer school district. It is a large district serving 19,000 lunches a day and it took over 12 weeks longer than anticipated to request procurement data from the vendors and distributors. During the data collection activities, we also learned that we can request amounts *or* dollars spent, not both. Vendors are not keen to provide both the weight and price of the specialty crops procured. Nor do vendors have systems in place to identify county of origin.

Therefore, we determined that in our final reporting we will include total dollars spent on specialty crops as that seems to be a more relevant figure, and could potentially serve as a baseline for future projects. The activities listed above highlights some procurement activities the school garden contractors may have participated in, while this section details total dollars spent as per the usage report records provided by school food buyers in those districts.

We found that in the Salem-Keizer school district, they spent approximately 9% of their total food budget, $304,429.14, on food that was produced, packaged or processed in Oregon. Of that, approximately $153,096.26, or roughly 50%, was used to purchase Oregon specialty crops either fresh, frozen or as a main ingredient in a multi-ingredient product. The most common specialty crops purchased at Salem-Keizer School District included apples, strawberries, pears, peaches, mushrooms, onions, garlic, tomatoes, cucumbers, corn, peppers, legumes and green beans.

We also found that in the North Powder School District, they spent $61,133.10 total from their distributor, and of that approximately 4% ($2,457.06) was on Oregon grown fruits and vegetables. Specialty crops accounted for nearly all of their local purchases. The most common specialty crops purchased at North Powder School District included apples, beets, cabbage, cantaloupes, carrots, celery, corn, cucumbers, eggplants, lettuce, mushrooms, nectarines, onions, parsnips, peaches, pears, peppers, plumbs, potatoes, rutabagas, spinach, squash, turnips, and watermelons.

Lastly, one of the grant proposed activities related to evaluation of impact was to conduct an economic analysis on the procurement data to determine if these total dollars spent (based on usage reports) on specialty crops as part of the grant activities was statistically significant. To make a comparison, we asked the schools to similarly supply procurement data from the 2009-2010 (the school year prior to the grant), and the 2010-2011 school years so we could assess changes from before the grant period to those attributable to the grant activities.

Once we had the data in hand, we experienced an extended delay in analysis of the procurement data. Although we established data collection systems in advance with the school food services,

the data we received from the school food buyers and distributors was incomplete and we questioned the validity.

The contracted Economist from Oregon State University ran preliminary t-tests, and as a results suspected missing and erroneous data. We sought a better data set from the schools but to no avail. It was overly onerous to gather, and the schools were hesitant to ask for it again from distributors. We determined therefore, that given our existing data set, that a further robust pre/post analysis of the existing data is not applicable, and the conclusions would be unreliable.

There are several reasons we believe there are missing and incorrect data. First there were both vendors and schools that supplied data in different forms. The schools reported one number that was less than the distributor in one case, and the opposite in the other case. For example, one school listed a few of the specialty crops purchased and some of them do not appear in the data. The North Powder data set lists farm direct purchases separate from those from its distributor. Salem Kaiser appears not to have reported these or tracked them a different way. However, looking at the vendor names reported in Salem Kaiser's food purchase data set we do not think that any direct farm purchases were reported in that data set. We know they had some, but the names are not in the data provided, even after multiple requests. This does not indicate an unwillingness to provide data on behalf of the schools, but rather is an indication of the state of records retained.

The inability to access solid procurement data from school, vendors and distributors in a real and on-going problem. The timeliness of experiencing these troubles in analysis could not be more relevant to the specialty crop industry working to get into the school food market in Oregon.

In 2011, the Oregon State Legislature passed HB 2800 which allocates up to 15 cents per school meal to purchase Oregon agricultural products and monies to pay for complementary food and garden-based education. In January 2013 the first grantees will be selected by the Oregon Department of Education in consultation with the Oregon Department of Agriculture. One of the requirements of accepting the grant is the ability to track purchases for reimbursement.

Knowing the difficulties experienced during this grant, the Oregon Department of Education, in partnership with the Department of Agriculture, went ahead and contacted each of the mainline distributors in Oregon in advance of releasing the Request for Application so that distributors would be apprised of the coming data requests. The two agencies are now also considering developing internal data collection systems.

**BENEFICIARIES**

Provide a description of the groups and other operations that benefited from the completion of this project's accomplishments.

Clearly state the quantitative data that concerns the beneficiaries affected by the project's accomplishments and/or the potential economic impact of the project.

The activities section above details the outputs different activities resulted in for a variety of beneficiaries including specialty crop producers, schools, children and their families. In addition, the beneficiaries of this project could be summarized as follows:

- Specialty crop producers and processors whose products were served and promoted in schools. One large co-op over 200 farmers that processes specialty crops grown in Oregon, and at least 12 growers directly.
- 3 School Food Nutrition Services expressed a genuine appreciation for inclusion in a program that links the cafeteria, classroom and community in a way that clearly support agriculture, education and the economy.
- At least 200 students learned first hand about production of specialty crops.
- Approximately 10,000 students were exposed to eating specialty crops as part of the school meal programs or tasting tables.
- Approximately 41,000 children and their families were exposed to Oregon specialty crops and their producers through newsletters home.

**LESSONS LEARNED**

In the small rural district the biggest challenge was distribution. It was simply hard to get specialty crops to the school. They overcame this, in part, through partnering with other institutional buyers and through volunteers going and getting specialty crops at farms and delivering them to the school. For the smaller community with strong rural roots, the concept of trying, eating and growing Oregon specialty crops was surprisingly foreign, yet was readily encouraged community-wide because of the agricultural ties and health implications. It was relatively easier to coordinate activities between the cafeteria and classroom.

In the large district it was more difficult to coordinate between the cafeteria, the garden and the classroom, although the garden educators did mirror many of the specialty crops featured in the cafeteria. The biggest opportunity for the large urban district is that because of its scale, buying power, and proximity to large distribution network, they are more easily able to purchase Oregon specialty crops. Because there is more cultural diversity in that district, it does seem like multiple culturally appropriate approaches would work better to engage different groups and ethnicities in trying, eating, and buying specialty crops.

In regards to preparing and serving specialty crops specifically, it took more time and labor to prepare Oregon grown fruits and vegetables if they were fresh, or direct from the farmer. Students quickly tire of the same types or shapes of fruits and vegetables and need them to come in a variety of shapes and sizes. That requires more advanced knife skills and additional labor time. Both of which neither district had the resources for. One idea may be to invest in minimal

processing equipment in school cafeterias in order to increase the amount and or variety of Oregon specialty crops served and eaten.

In interviews we conducted with the school food buyers at both schools, when asked "what do you need to buy more Oregon specialty crops?" both indicated something to the effect that "Kids barely come to school ready to learn, and definitely not ready to eat!" These sentiments have been echoed in other procurement conversations we have had with other school districts around the state. Future projects should employ innovative programming that simultaneously increase availability and accessibility of specialty crops in schools and elsewhere in community, with efforts targeted to parents to elevate their awareness of and attitudes about, and utilization of, Oregon's specialty crops.

**TITLE: ODA-006 Specialty Crop Trade Mission – *Final Report (Approved – 02/07/2014)***

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## PROJECT SUMMARY

The purpose of the trade mission project was to develop new market opportunites and support the sales of existing specialty crop products from Oregon and Washington State (Northwest) by creating market interest in new varieties of fresh potatoes and other specialty crop products in the Hong Kong/Macau, Singapore and Vietnam markets. At the same time, the mission provided the grower/packer participants the ability to gather invaluable market reconnaissance and learn first hand from key importers and distributors of specialty crop products in these three market areas.

In addition, the trade mission created an increased awareness of Northwest potatoes and other specialty crop products, by demonstrating western cuisine to S.E. Asia customers and providing opportunties to build personal relationships between buyers and sellers.

Building on the FY2009 joint Director's mission to Asia (e.g. WSDA/ODA Directors both traveling, reaching Asian markets), this mission reached new markets and new venues in existing markets. The participation of two state directors of agriculture and industry participants continues to have a significant impact in the promotion and sales of specialty crops across Asian markets.

## PROJECT APPROACH

The Specialty Crop Trade Mission was executed November 1-12, 2011 to the markets of Singapore, Vietnam and Hong Kong/Macau. The mission included 14 participants representing growers, packers, product commissions and government to introduce specialty crop products including fresh potatoes, pears, apples, and blueberries as well a wine.

Each participant played a key role in the success of this mission, lead by the Director's of Agriculture from Oregon and Washington who were able to secure significant market contacts and interest while producers, commission representatives and government staff/officials provided technical export opportunities, details and requirements directly with buyers. The chef that traveled with the Oregon Potato Commission gave a significant amount of in-kind time and effort to demonstrate Northwest specialty potatoes in every venue that was visited.

The mission developed new opportunities in each of the markets as well as support existing specialty crop products from Oregon and Washington State. This was accomplished through buyer/seller meetings, technical discussions and presentations with the trade, and product cooking demonstrations. In addition, cold storage capacity and delivery chain were investigated

in Singapore, one of the world's largest containerized port facilities. Singapore also included participation in the US Embassy Taste of America Reception, which provided a unique opportunity to engage with some of the region's most significant importers. The Oregon/Washington Specialty Crop Food Product Reception in Hong Kong yielded similarly impressive results. Wholesale market tours in Singapore, Vietnam and Hong Kong provided "insider" views of how both local and imported products are distributed for consumption outside the large retail and foodservice settings. In addition, retail market tours were conducted in each of the markets as well as in-store product demonstrations in Vietnam.

As stated above, shipping fresh product into Vietnam is a challenge. The quality of fresh potatoes arriving in Vietnam for the project was an issue, with only 1/3 of the product being usable. The mission members immediately engaged in discussions with Vietnamese officials possible improvements to facilitate the arrival of quality sample shipments necessary to build this market. The problems incurred could be associated with the use of air cargo for the transportation of the product and exposure to temperature extremes. In addition, the ability of cool chain facilities available to preserve the product upon arrival needs to be more fully developed and understood. Commercial shipments to Vietnam using refrigerated shipping containers may resolve the quality issues encountered on this mission.

Oregon and Washington shippers needed additional information to ensure their product meets the phytosanitary concerns as well as the receivers needed to understand expected shelf life and handling techniques. Further research and tests should be performed in ensure good delivery of product.

**GOALS AND OUTCOMES ACHIEVED**

These activities accomplished the project's goals and objectives with the following outcomes:
Utilized high-level officials to gain the market access and impact desired in new markets and new venues.

Increased participants' knowledge of the Southeast Asia region and the particular challenges and opportunities associated with exporting specialty crops to the region. For example, Northwest specialty crops will need to trade at a premium in terms of quality and price to overcome the logistical advantages resulting from the ASEAN agreements the effected members countries have with one another.
Increased the awareness of Northwest specialty crop products, demonstrated their uses and built personal relationships between buyers and sellers to facilitate additional specialty crop products sales.

Addressed technical and phytosanitary logistics. Shipment of perishable product from the US West Coast to Vietnam for the mission proved very difficult. Better protections need to be

provided from temperature abuse during both air transit and time delays from the port of importation to the wholesale distribution facility.
Identified wholesale market buying interests for fresh Northwest blueberries as well as a counter seasonal presence of southern hemisphere berries that Northwest product can build upon.
Discussed regional competitive influences for specialty crop vegetables from Thailand, Vietnam and Indonesia.

The ultimate goal was to increase the overall sale of specialty crop products. Commitment to this by the participating member of the Northwest delegation is ongoing with continued research and follow-up efforts. These efforts will help to identify resolution to technical barriers to enable increase in sales. While minimal sales did result following the mission (less than $50,000), the overall sales to these markets remained flat compared to previous years. It is still believed this project can create at least $500,000 of new on-farm and packing shed economic activity with continued and planned follow-up by the respective states industry participants and potato commissions.

After surveying the participants to measure the value of the mission to increase their knowledge and understanding of export markets, and during recent ODA meetings in Vietnam, it was noted by industry and the ODA that several improvements had been implemented in the cool chain handling of fresh Oregon products at the retail level and particularly for potatoes. One importer had learned how the temperatures of the potatoes can dramatically effect the sugars in potatoes, which when held at the wrong temperatures can produce defects in finished product. Additionally, packers of fresh potatoes have developed relationships with direct importers. These relationships have led to better education of how to handle their products for shelf stability and inventory control. During the recent retail audits, retailers made inquiries into the availability of frozen vegetables and berries. These inquiries are being forwarded to suppliers.

Of note on the cold/cool chain system in Vietnam, a new state of the art facility was in place. Discussions were had and pricing discussed that may be value for several segments of Oregon fruit and vegetable industry. Depending on the volume of interest, some significant savings and custom temperature control could be achieved which could provide measurable enhancement in quality for our products and ultimately increase in sales.

**BENEFICIARIES**

The mission included 14 participants representing growers, packers, product commissions and government to introduce specialty crop products including fresh potatoes, pears, apples, and blueberries as well a wine.

Developing new export trading opportunities create significant economic, employment and social benefit for the states of Oregon and Washington. Traded sector sales are important drivers

of infrastructure development such as warehouse and shipping terminals and rail and port facilities.

The strength of two Directors of Agriculture from two notable specialty crop states meeting with SE Asia government officials to address trade barriers is a benefit than cannot be questioned but nonetheless difficult to measure.

This project will mean increased export sales for Oregon and Washington State specialty crop products through the introduction of new-to-market products. It is still believed this project can create at least $500,000 of new on-farm and packing shed economic activity with continued and planned follow-up by the respective states industry participants and potato commissions.

There continues to be broad support and commitment from Oregon and Washington's potato industries with growers and industry representatives to give technical expertise and meet with buyer representatives in all the markets and the importance of these markets to the Oregon and Washington potato producers.

**LESSONS LEARNED**

Based upon the work from the previous mission, we learned that the participation of high-level officials continues to have a significant impact in the promotion and sales of specialty crops in Asian markets.

Shipping fresh product into Vietnam is a challenge. The quality of fresh potatoes arriving in Vietnam for the project was an issue, with only 1/3 of the product being usable. The mission members immediately engaged in discussions with Vietnamese officials possible improvements to facilitate the arrival of quality sample shipments necessary to build this market. The problems incurred could be associated with the use of air cargo for the transportation of the product and exposure to temperature extremes. In addition, the ability of cool chain facilities available to preserve the product upon arrival needs to be more fully developed and understood. Commercial shipments to Vietnam using refrigerated shipping containers may resolve the quality issues encountered on this mission.

Oregon and Washington shippers need additional information to ensure their product meets the phytosanitary concerns as well as the receivers need to understand expected shelf life and handling techniques. Further research and tests should be performed in ensure good delivery of product; and ultimately the project reminds us that sales results can take longer than expected and continue follow-up and commitment even after the conclusion of the project is critical.

**TITLE: ODA-007 Cultivating Agripreneurs – *Final Report (Approved 2/20/2013)***

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**PROJECT SUMMARY**

The face of agriculture is changing in Oregon. The average age of Oregon farmers is 57.5 years, the oldest on record. The number of farms in Oregon has declined to a nine-year low. Young people used to learn about farming from growing up on the family farm. Complex social and financial pressures have dramatically changed this relationship.

At the same time, specialty crop producers are making a comeback in Oregon. This vibrant sector of our economy has endless potential and opportunity for growth. The average market value of products sold has increased by nearly $13,000 per farm in Jackson County between 2002 and 2007. Southern Oregon now hosts 10 weekly farmers' markets and 11 Community Supported Agriculture (CSA) programs, up from just three markets and one CSA just five years ago.

Extension faculty from around the state have seen a dramatic increase in the number of people interested in pursuing a career in sustainable agriculture. Despite the demand, however, there is no comprehensive plan to educate and train this new generation of farmers. Quality on-farm training, educational programming and business development support are essential to address this problem and open opportunities for beginning farmers.

The Oregon State University Small Farms program has been working to develop comprehensive beginning farmer education for the past five years. The newest program, *Growing Agripreneurs* is designed for beginning farmers seeking a hands-on, season-long educational experience. The program boasts a low student-teacher ratio and consists of weekly field work as well as classes, skill-building sessions and one-on-one mentoring.

Over the course of a season, students are exposed to all aspects of sustainable, small-scale farming including production of annuals, perennials, grains and cover crop. Participants gain extensive field experience working on OSU Extension's 1 acre Teaching Farm, as well as by touring other farming operations. Eleven classes cover both theoretical and practical information and are taught by OSU faculty, experienced farmers and other agricultural professionals. Monthly field walks are conducted to help participants develop critical observation skills, which are crucial to farm planning and management. Skill building workshops are held during these hours on relevant topics such as making propagation media, installing drip tape and trellising. Students have the opportunity to sell at a local farmer's market and participate in harvesting,

packing, booth display and sales. Students also learn to pack-out and distribute produce through an on-line market program. Evaluations from the first cohort demonstrate a high degree of satisfaction with the program and a dramatic increase in skills and knowledge.

**PROJECT APPROACH**

Program Components

1. Classes

Five classes were offered between April and October on various aspects of small-scale production. Classes were taught at the Extension Center. Curriculum modules were developed for the Growing Agripreneurs program will be available through OSU for use on other teaching farms. Class topics consisted of:

- Basic Horticulture
- Soil science
- Irrigation
- Integrated Pest Management
- Small-scale Equipment

2. Field Work

On weeks when classes were are not held, participants worked alongside a farm mentor at OSU's Franklin Teaching Plot for a minimum of three hours. Activities were seasonally dependent and included all aspects of specialty crop farming including seeding, transplanting, cultivation and harvesting. Field work hours were determined based on the participants' schedules. Hours spent alongside the farm mentor provided ample opportunities for discussions about farming methods and practices, and well as hands-on instruction and feedback. Participants did not always attend field hours, which created some problems related to the amount of labor required for fieldwork.

3. Skill-building Sessions/Farm walks

Once a month, farm mentors chose a particular skill to demonstrate and practice with the Growing Agripreneurs cohort. Members of the cohort requested sessions based on their interest and level of skill. Skill-building sessions included:

- Making soil media
- Laying out drip irrigation
- Seed saving
- Incorporating compost and fertilizer into beds
- Pruning
- Trellising
- Post-harvest handling
- Weed identification

Post-season evaluations indicated that 80% of participants felt competent in all of the skills covered during skill-building sessions and 20% of participants felt competent in all but one of the skills. In addition, the farm mentor led participants on a "farm walk" each month, during

which she would point out all the outstanding tasks and relative degrees of importance, any challenges or problems as well as successes. Through this process, participants began to see the farm through a managers perspective.

**GOALS AND OUTCOMES ACHIEVED**

Activities completed:
5 classes taught
8 skill-building sessions conducted
8 farm walks
160 hours of supervised field work conducted
Completion of three curriculum modules

Impacts from the first year of the program are based on number of new farm businesses are the results of pre and post-tests. Of five program graduates, three went on to start their own farming operations while the other two secured jobs as farm managers. Pre and post-test results indicate a 87% increase in knowledge and comprehension of basic sustainable agriculture principles. Qualitative interviews revealed a very high level of satisfaction among participants.

In 2012, the number of Growing Agripreneur participants doubled. This increase highlights a growing demand for hands-on agricultural education.

**BENEFICIARIES**

The primary beneficiaries are the five graduates of the Growing Agripreneurs program. As mentioned in the previous section, over 60% of graduates went on to start their own commercial enterprises, while the other 40% worked as farm managers upon completion of the program.

Additionally, 3000 lbs of food was donated to local food pantries for the Franklin Teaching Farm.

**LESSONS LEARNED**

Feedback from first year participants provided insights into weaknesses in the program. Graduates expressed a strong desire to visit other commercial operations and take farm tours. As a result of this feedback, Growing Agripreneurs will team up with Rogue Farm Corps (RFC) *Farms Next* on-farm internship program during the 2013 season. Rogue Farm Corps is a non-profit organization that works to improve the quality of farm internships in Southern Oregon. The two programs currently emphasize different aspects of agricultural education: OSU focuses on academic, classroom-based learning while RFC highlights various farm operations and their practices. Growing Agripreneur participants will have opportunities to visit many farms in the area.

In addition, participants requested more training in marketing and distribution. They felt that learning to market produce is a critical aspect of food production missing from the Growing Agripreneurs program. As a result, participants in 2013 will have opportunities to sell produce at two local farmers market and through an on-line market.

Finally, we experienced a 50% attrition rate during the first year. When interviewed, participants who dropped out of the program cited their busy schedules as the main obstacle for completion. The program is 7 months long and requires at least three hours per week from participants. While the number of hours is minimal, the long season seems to be a barrier to completion. We are unsure of how to address this issue.

**TITLE: ODA-008 My Oregon Farm Days – *Final Report (Approved – 02/07/2014)***

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**PROJECT TITLE:** My Oregon Farm Days

## PROJECT SUMMARY

The "My Oregon Farm Days" project was designed to address challenges faced by new specialty crop farmers and established farmers seeking local buyers. Shifts in the economy and globalization began affecting Oregon specialty crop farmers, many of whom lost contracts and needed to find new markets and/or sell what they grew themselves, a new experience.

At the same time a surge of new farmers struggled with knowing where to find relevant help or indicated being overwhelmed by multiple information sources that didn't always fit their needs. Connecting to buyers was and is challenging for many Oregon specialty crop farmers, especially newer farmers or those interested in selling into local/regional channels not explored.

An active outreach program identifying and targeting specialty crop farmers and providing visible access to marketing and technical assistance was needed to assist farmers. "My Oregon Farm Days" was designed to provide opportunities to connect rural and urban specialty crop farmers with local trade buyers and improve visibility of technical and marketing assistance offered to Oregon farmers.

## PROJECT APPROACH

A number of activities were planned and executed by the Oregon Department of Agriculture (ODA) staff beginning in the fall of 2010 and ending in 2013. Activities were completed with the assistance of a contracted events/public relations specialist, to help develop connections between specialty crop farmers/producers and local/regional buyers:

100 retail and foodservice buyers and distributor contacts were identified. A dozen key buyers were visited over a period of several months to gage interest in local specialty crop purchases, including any desired 'wish list' items. Availability to attend or participate in My Oregon Farm Day events was noted. The buyer contact list was helpful in identifying speakers for the first My Oregon Farm Days workshop, held at the Oregon State University campus in March 2011. The list was also helpful when organizing a panel session on distribution at the 2012 Farmer Chef Connection conference; and used to invite buyers to the My Oregon Farm Day trade showcase held during the September 2012 FEAST food festival in Portland.

A “My Oregon Farm” logo was developed by the contracted specialist and used on banners, posters, signs and outreach materials for five regional local food system workshop presentations and the trade showcase. The logo was well received and subsequently a retailer requested using the logo to identify Oregon origin produce in their stores. It is anticipated the logo has potential for future use if actively promoted. *An image of the logo is included with this report*.

With the exception of the stand-alone My Oregon Farm Days workshop (an immediate post workshop survey was filled out by 32 of the 50 attending farmers) and the ODA organized trade showcase at FEAST, it was not possible to track or do follow up surveys of the audiences attending ODA staff led sessions or presentations at the five regional workshops organized by other groups. ODA staff estimated buyer and specialty crop farmer attendance at regional event sessions, based on questions asked and a show of hands at some of the events, far exceeded the project goal of 30 wholesale buyers and 60 farmers in aggregate. The FEAST trade showcase had 33 specialty crop producer vendors (plus 16 others) and 47 individual trade buyers who rsvp’d their attendance (plus three media invitees) with a few no-shows. At all events, connections were made, contacts updated.

Another graphic developed by the contracted specialist as part of the My Oregon Farm Days project was a word cluster highlighting Oregon specialty crops set in an outline of the state’s shape. The graphic was used in the FEAST Portland festival program distributed to thousands of festival attendees and illustrated the diversity of Oregon’s specialty crop agriculture. The graphic received many unsolicited favorable comments. *An image of the graphic is included in this report*.

A survey was conducted with the FEAST trade showcase buyers and participant specialty crop producers at the conclusion of the September, 2012 event and a post-event follow-up survey conducted via e-mail seven months later, with 19 out of 49 vendors responding. Five of the 19 specialty crop vendors confirmed sales generated specifically from contacts made at the tradeshow case, with aggregated sales of $5,810. As the only sales documented and specifically attributed to the project’s many activities, the value fell short of the project sales targets, but not short for numbers of participating buyers and farmers.

It was encouraging that at least 10 of the trade showcase buyers were highly complimentary of the trade showcase and several others who were not able to attend confirmed their interest in being notified of future events. Two of the participant vendors indicated they were especially delighted with the results of the trade showcase, confirming new

customers who continue to purchase their products, a direct result of their trade showcase participation.

## GOALS AND OUTCOMES ACHIEVED

One of two primary goals of the project was to create more access to marketing and technical assistance for Oregon farmers, and to provide more opportunities for Oregon farmers to better communicate/share their needs with the Oregon Department of Agriculture, and others service providers. The target was to have a minimum of 60 farmers attending/participating in events.

A second goal was to develop/strengthen relationships between Oregon specialty crop producers and local buyers. The target was to have a minimum of 30 wholesale buyers participate in events.

ODA staff organized, and/or participated in five regional workshops and conferences as speakers, session moderators or staffed information tables to provide visibility and assistance for Oregon specialty crop producers. Staff organized one trade showcase as part of a Portland based food festival. Events summarized below:

March 30, 2011 - My Oregon Farm Days workshop
The workshop offered sessions highlighting programs and services for specialty crop producers, including certifications, food safety, farm-to-school, local marketing and an on-line system, FoodHub, to help connect buyers and sellers. A post-workshop survey was filled out by 32 out of 49 attending farmers. Some farms sent two attendees, so the number of farms that filled out surveys was actually a higher percent than actual number of attendees. Eight farmers were no-shows in addition to six who had originally signed up for the workshop but cancelled. Survey evaluations overall indicated satisfaction with the workshop presentations and especially high marks for the local buyer's panel.

October, 2011- A regional local food connections conference was held in Douglas County (Southern Oregon), and ODA displayed the My Oregon Farm logo and materials, distributed information and participated on two panels that focused on connections to local buyers. Approximately 20 farmers and specialty crop food product producers attended the conference, with 20 local service providers participants and a few chefs from nearby restaurants.

October, 2011 - ODA participated in a state-wide Foodservices of America (FSA) distributor tradeshow in Portland with a staffed "My Oregon Farm" table. Information about Oregon

Specialty Crops and how to access the My Oregon Farm logo for buyers interested in identifying Oregon specialty crop products served in their operations. From the number of pieces of literature and little bags of Oregon hazelnuts distributed, an estimated 100 interested people stopped by the table. Additionally, some of the FSA sales people received information about Oregon specialty crops and suggestions on promoting them to their customers.

October, 2011 - A "bonus" activity gave visibility to the "My Oregon Farm" logo and some contacts to add to the project master list: a table-top "pop-up" tradeshow held in a Portland supermarket parking lot, organized by Ecotrust/FoodHub. They provided space for the My Oregon Farm banner and ODA staff met with the exhibiting farm/specialty product vendors, (some of whom were specialty crops), and a few retail and chef visitors to the event. (photos from events attached).

February 6, 2012 - Lane/Benton counties Local Food Connections conference: ODA staff participated in a resources panel. The conference drew over 100 growers, producers and service providers for workshop sessions; showcased local ingredients in the lunch and had a limited number of producers featured at tabletops. There was no specific dedicated time for showcase connections as workshop sessions were all concurrent and showcase took place in the room during sessions and when lunch was served.

March 5, 2012 - Farmer Chef Connection conference: ODA proposed, organized and moderated a buyer/distributor panel. Conference organizers reported attendee profiles: 155 specialty crop growers/producers; 70 trade buyers (school foodservice, restaurant, retail, value-added processors); approximately 40 growers and producers attended the buyer/distributor panel session. Sales connections from the conference or specifically from the buyer/distributor panel were not trackable.

March 15, 2012 -"What's Your Connection" workshop in Pendleton (Eastern), Oregon: ODA staffed a My Oregon Farm Days information table and offered resources during a breakout round table session. The workshop drew 30 growers and 20 service providers and a handful of grower/producers displayed products at tables. One grower at the event indicated a potential sales contact made with a casino chef.

**Measurable Outcomes:** New relationships will be established between growers and buyers, with a minimum of 30 wholesale buyers and 60 farmers attending/participating in the events

**Results:** None of the regional events provided ideal or optimum trackable face-to-face buyer/seller connections, but there were well over 200 growers and over 30 wholesale buyers attending/participating in events and some sales connections may have been made.

**May-September, 2012 FEAST Portland festival/My Oregon Farm Days trade showcase**
Oregon Department of Agriculture (ODA) staff identified and provided Oregon specialty crop agriculture facts and messages for festival organizers outreach to local and national culinary professionals and media. Because Feast Portland was national in scope and targeted well-known chefs, national/regional/local media, the first festival media kick-off took place in New York City, May 21, 2012. A Portland kick-off for media and local chefs took place June 18, 2012.

ODA staff solicited Oregon specialty crop grower/producer participation for the September 21-22, 2012 trade showcase. Grower/Producer solicitation was carried out through e-mail, a press release, and sent to Oregon agriculture associations, commissions and networks of local growers, such as FoodHub.com and the Oregon Farmers Markets Association to distribute to their networks of growers, processors. The Oregon Farm Days project contracted Media/PR specialist assisted with outreach.

ODA staff assisted festival organizers identify Oregon specialty crop artisan producers to be included in the open-to-the-public "Oregon Bounty Marketplace", which took place in a huge tent in the heart of downtown Portland. The Oregon trade showcase was held in adjacent space along one side of the tent.

ODA staff, with assistance from the contracted Media/PR specialist further refined and consolidated a targeted local trade buyers list for ODA outreach and intended to complement festival organizers regional/national outreach efforts. Invited local trade included retailers, chefs and distributors and outreach was coordinated by ODA in cooperation with Feast festival staff.

ODA staff helped festival staff coordinate a trade-focused workshop, providing facts about Oregon agriculture. The workshop took place Friday, September 21, 2012.

ODA staff provided a list of specialty crop commodity/agricultural products to festival staff for potential use in chef demos and chef tasting events.

ODA funded a unique 'Oregon crops business card/bookmark' for inclusion in the Feast festival VIP/Media gift bags. (Specialty crop funding was not used because non-specialty crops were included in the piece.)

ODA staff, with the contracted Media/PR specialist, provided print-ready ODA/My Oregon Farm logo, intended for placement and inclusion in festival press releases, email newsletters, website, and social media, including local, regional, and national print advertisements: Seattle

Metropolitan, Aspen Sojourner, Bon Appétit, and Portland Monthly. However the ODA/My Oregon Farm logo was not included in any of the FEAST festival ads listed above, (as had been originally outlined by the festival organizers) as the organizers changed sponsorship level benefits.

ODA staff, with the contracted Media/PR specialist, developed a one half-page advertisement highlighting Oregon specialty crop agriculture for inclusion in the festival program.

ODA staff, with the contracted Media/PR specialist contacted targeted trade buyers via e-mail in August, mid-September and made phone calls the week of the festival to solicit RSVP's for the trade showcase. Attending buyers/media were to be tracked with a sign in sheet. Actual: The final layout of the showcase venue and limited space as well as the controlled entrance points prevented some buyers from finding the trade showcase even with volunteer appointed guides and attendance on Saturday vs Friday was disappointing.

**October 2012**

ODA staff began analyzing the success of the project through a post-activity e-mail survey sent to participating specialty crop growers, producers and invited buyers. The target minimum of five trade buyers contacted via e-mail and by telephone regarding sales connections and interest in future trade show case opportunities was surpassed. All those surveyed were reminded that they would be contacted again in six months as follow-up on gathering additional sales contacts made or provide assistance they might need.

The September Feast Festival trade showcase space accommodated 30 specialty crop growers/processors each of the two scheduled days, 60 total. 35 specialty crop growers/producers signed up to participate 33 were able to attend (plus 13 non specialty crop producers). 24 out of 47 buyers were in attendance. A post activity survey immediately following the trade showcase indicated 21 potential product connections for buyers and 24 sales connections for growers/processors.

The trade showcase was intended to have a dedicated first hour each of the two scheduled Oregon Bounty Marketplace days, for JUST trade and media to attend the My Oregon Farm trade showcase. The Oregon Bounty Marketplace vendors, inside a giant tent, were to begin their tastings for the public after the first hour. The FEAST Festival organizers changed their plan and started the entire event at the same time as the trade showcase, allowing "VIP paying consumers" to come into the event the first hour, with 'regular' paying consumers denied entrance until after the first hour. This caused confusion and delayed some of the invited trade buyers being allowed access into the event space and ODA staff had to spend energy and time "guarding" the trade showcase area, so that the Oregon growers and processors would have the best opportunity to make face-to-face connections with invited trade guests, rather than the consumers who were "VIP" and allowed entrance that first hour.

Even though ODA staff was given dedicated table space near the event entrance to check in invited guests and direct them to the showcase area, once people entered the main area, it was difficult to assure they reached the My Oregon Farm trade showcase area, which was far away from the entrance and mostly hidden behind the tent wall of the Oregon Bounty Marketplace tasting area.

The showcase was scheduled for the two Oregon Bounty Marketplace days, a Friday and Saturday. The allocated space for the trade showcase was limited, so it was not feasible to have all participant Oregon growers/processors be there on Friday, the predictably more ideal day for trade buyers to attend. Friday had far better attendance from trade guests, so companies and growers who exhibited on Saturday had less opportunity for face-to-face meetings than had been anticipated.

ODA staff made a diligent effort to assure buyer attendance, with several e-mail reminders sent and telephone call reminders a few days prior to the showcase. However, many rsvp'd buyers still didn't show up. There were encouraging responses from buyers who said they couldn't make it, with expressed interest in future events, and all the trade buyers were sent contact information for all specialty crop growers and processors who participated in the showcase. A complete list of buyer contacts was also given to the participating specialty crop growers/processors for them to follow-up with.

All trade buyers and participating specialty crop growers/processors were asked to fill out a post-event survey in September 2012 were reminded that they will be contacted again in April, 2013 by ODA staff who plan to follow-up on gathering any additional sales contacts made or assistance they might need through another survey sent via e-mail and telephone calls as needed.

**Measurable Outcomes**: New relationships will be established between growers and buyers, with a minimum of 30 wholesale buyers and 60 farmers attending/participating in the events

**Actual:** Five of the 19 specialty crop farmers and processors who completed the survey (out of 33 specialty crop producer participants) confirmed sales generated specifically from contacts made at the tradeshow case, with aggregated sales of $5,810. Additionally, two specialty crop vendors who did not make sales stated they found the trade showcase very helpful, and the contacts made useful, but their production levels were too small to entertain sales requests at the time of the trade showcase. Some additional Feast festival chef/specialty crop producer or consumer/specialty crop producer sales contacts may have been generated but were not tracked.

**BENEFICIARIES**

There were well over 200 specialty crop growers and over 30 wholesale buyers attending/participating in the regional events held between March, 2011 through April, 2013.

Some sales connections were made, but most were not tracked or documented. Five of the 19 specialty crop farmers and processors who completed the September 2012 FEAST survey confirmed sales generated specifically from contacts made at the tradeshow case, with aggregated sales of $5,810. Additionally, two specialty crop vendors who did not make sales stated they found the trade showcase very helpful, and the contacts made useful, but their production levels were too small to entertain sales requests at the time of the trade showcase and they were encouraged to grow their production levels. At least two who reported sales have had repeat orders from buyers met at the trade showcase.

Comments from several retail buyers confirmed their interest to purchase local products. Their interest will be of use to the specialty crop growers and processors who participated in the trade showcase and for others, as the list of buyers is available for any Oregon producer. A staff person from one of the stores who came to the trade showcase commented that one of the products they learned about at the trade showcase and continue to purchase is one of their most demanded products.

**LESSONS LEARNED**

Some of the challenges encountered for this project included having to reschedule the stand-alone My Oregon Farm Days workshop and a long time lapse before subsequent events because of project modifications, scheduling challenges and staffing availability. The delays did allow staff to maintain and build outreach connections with regional local food systems groups, which was helpful. Having the platform of My Oregon Farm Days with a developed logo also helped build the visibility for specialty crop farmers seeking services, which was one of the goals of the project.

Collaborating with other organizations and efforts to build relationships between local growers, producers and buyers put less strain on growers and buyers time from not having to schedule more events, but also made it more difficult to track and measure results. It gave the ODA staff less control over how much space was allocated, what time of day or when events took place, and limited ability to obtain contact lists. Others looking to organize events need to weigh the benefits of leveraging/collaboration versus having less control. Based on low trade attendance on the weekend, future local trade showcases will most likely not be scheduled on weekend days.

Having adequate staffing (for this project contracted services were used) to do outreach to buyers and for follow ups with specialty crop producers and buyers was very helpful. The trade showcase still had almost half of those who had rsvp'd (24 out of 47) not show up.

**TITLE: ODA-S09 Integrated Pest Management, Conservation Programs and Reduction in Environmental Impacts for Specialty Crop Industries in Umatilla County, Oregon – *Final Report (Approved 2/20/2013)***

**CONTACT NAME: Todd Davis, Blue Mountain Horticultural Society**
**PHONE: 509-520-2986**
**EMAIL: tdavis@applelovers.com**

**PROJECT SUMMARY**

Fruit crops grown in the Walla Walla Valley are subject to undesirable quarantine pests (PROBLEM)

- These pests are either present in Milton-Freewater (e.g. codling moth and cherry fruit fly) or are nearby (e.g. apple maggot in Pendleton).
- If these nearby pests and others (e.g. lesser brown apple moth; vinegar fruit fly) are introduced into this valley, it will adversely affect the export potential both overseas and locally (IMPORTANCE).
- Every effort must be made to exclude those pests not yet present, and to control the spread of existing pests effectively, but at the same time reducing chemical inputs and protecting the environment (OBJECTIVE).
- Codling moth in the Walla Walla Valley: This is a major pest of apple orchards and is a serious quarantine pest for export markets. Mating disruption of females using male pheromones is used in apple orchards by creating a super saturated cloud of pheromones above the trees. This prevents the females from finding the males and thus egg laying of fertile egg does not take place. This project enabled all 2554 acres of apples to be treated, thus facilitating markedly less organophosphate usage in the Valley (OUTCOME).
- Apple Maggots in Pendleton: the integrated approach has resulted in a dramatic decrease in the number of apple maggots trapped from 137 in 2006 to 6 in 2007 and only 2 in 2008, 3 in 2009, 4 in 2010, 4 in 2011 and none in 2012 (OUTCOME). It has been concluded that the spread of this pest has been contained in the Pendleton area but continued trapping is imperative to confirm this over the next 3 years.
- Don't bug us Campaign: More than 550 problematic host trees have been removed from home gardens in the Milton-Freewater area and more than 450 replacement trees have been distributed to home owners in the area.

**PROJECT APPROACH**

**1) Codling moth**

***Situation:***

- Codling moth is the most destructive insect pest of apple fruit and is a quarantine pest for several important export markets. In the absence of mating disruption, up to eight full cover sprays are needed for adequate control. Furthermore, spraying is harmful to non-

target organisms, and parasites of other orchard insect and mite pests. Worker safety is also threatened by heavy insecticide use, especially organophosphates. An areawide mating disruption program has been adopted by the entire apple acreage in the Walla Walla Valley and has proven to be highly successful in reducing sprays and determining accurate timing of targeted soft chemicals. Continuation, refinement and dissemination of this areawide program is required for maximum effect in the entire Valley.

***Action:***

- A total of 625 Delta traps (1X lures) were placed in 2554 acres of apples and cherries throughout the Walla Walla Valley. These triangular shaped traps house a sticky plate with a pheromone capsule that attracts codling moth males to the traps (Fig. 1).

Figure 1. Delta trap with removable sticky plate, pheromone capsule and insects caught on the plate.

- Each trap was read weekly and the results captured in a spreadsheet that was distributed daily to growers and housed on the OSU Extension website http://extension.oregonstate.edu/umatilla/mf/
- Furthermore, each trap was GPS'd and the co-ordinates fed into a model (Dr Len Coop) together with the weekly trap count that allowed each trap in the entire Valley to be graphed on a weekly basis as a visual representation (http://uspest.org/risk/codling_moth)

Figure 2. Graphical representation of codling moth in Milton Freewater area. This is an exact pinpoint of the number of moths at each trap for a given week.

- Mating disruption was enforced in the entire Valley (2554 acres) using 10X lures. These lures are placed in the tops of the trees to confuse the females when the fly above the trees looking for males

Figure 3. Isomate 10X lures placed in the tops of apple trees to create pheromone cloud above the orchard.

- Data, including Biofix were fed into the codling moth model and the model was then run on a daily basis by the Integrated Plant Protection Center (IPPC) in Corvallis and streamlined to the Website for the growers use in predicting chemical sprays and timing. (http://extension.oregonstate.edu/umatilla/mf/)
- Monthly meetings on the first Tuesday of the month at noon were held for growers (43+) were educated in the use of ovidices, both topical (eg. Oil & Calypso) and residual (e.g. Esteem, Rimon & Entrepid) larvacides (e.g. Assail, Altacor & Delegate), and adulticides (Guthion & Pyrethroids). Timing of these pesticides is critical for optimum effect and adulticides are to be avoided whenever possible.
- Dr. Clive Kaiser undertook several training events both in the office (7 growers), in the field (9 growers) and through individual house visits (5 growers). An annual workshop was held to present the results of the program (67 growers and 5 field men attended the workshop). (http://extension.oregonstate.edu/umatilla/mf/february-1-2012)

***Results/Impact:***

- The website has been in place throughout the season http://uspest.org/risk/codling_moth and on average has been accessed more than 1,000 times per month. In addition, an animated map was compiled of the trap counts for the entire season

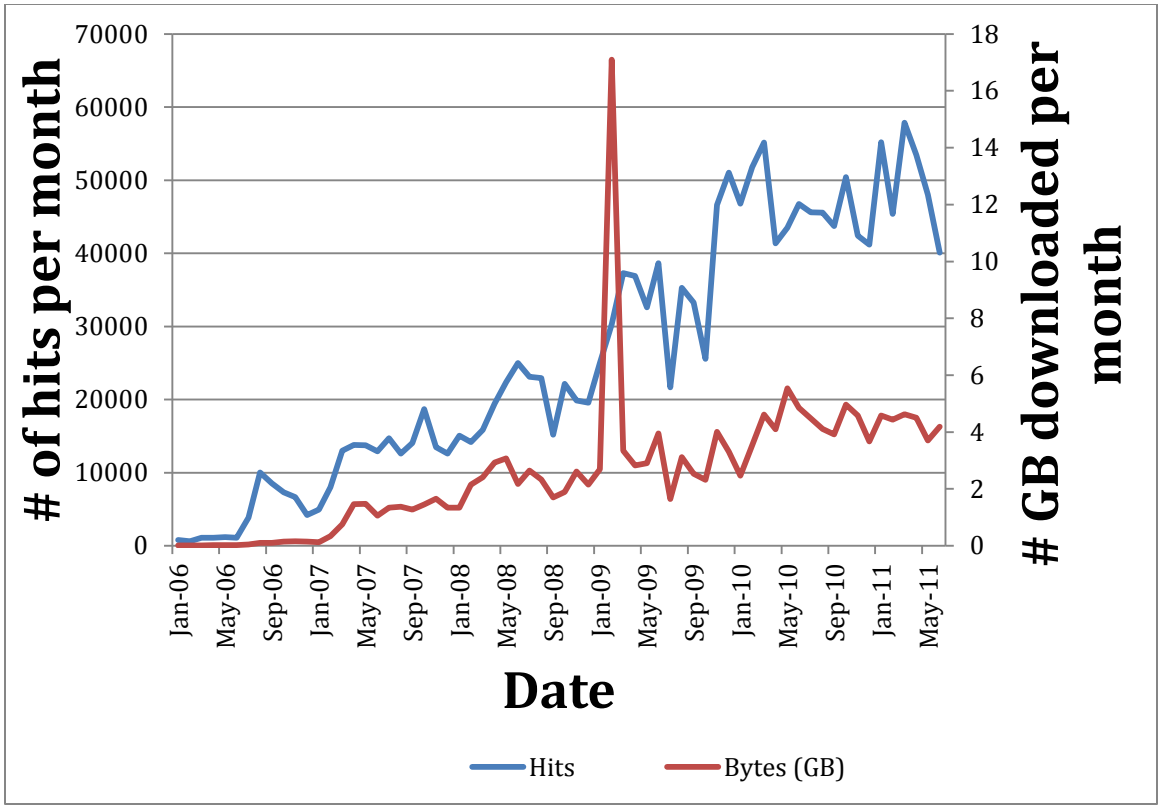


Figure 4a. Average # hits per month & Average # GB downloaded per month from Jan 2006 till May 2011. Subsequent to May 2011, the University cancelled the service and used Google Analytical. This service does not capture the data in as much detail so is not shown. (The spike in Jan 09 was due to a massive download from China).

- http://uspest.org/risk/walla_walla_codling_moth_movie and this too is being accessed regularly.
- Grower acceptance of the products was demonstrated using chemical records from the chemical suppliers.

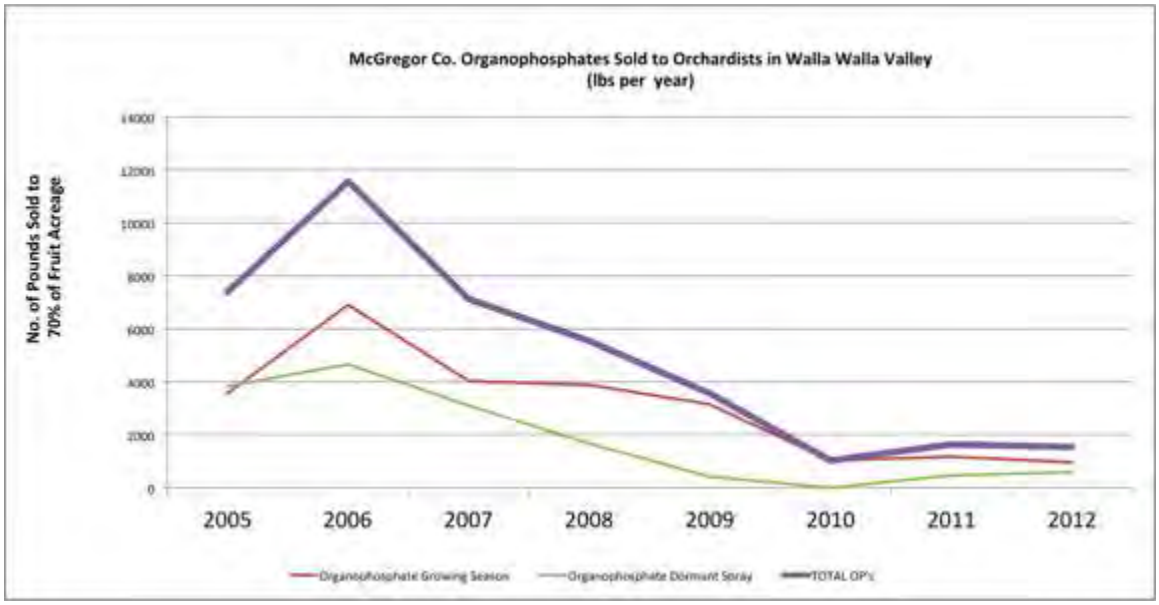


Figure 4b. Organophosphate sales to orchardists by The McGregor Company to over 70% of acreage in Walla Walla Valley

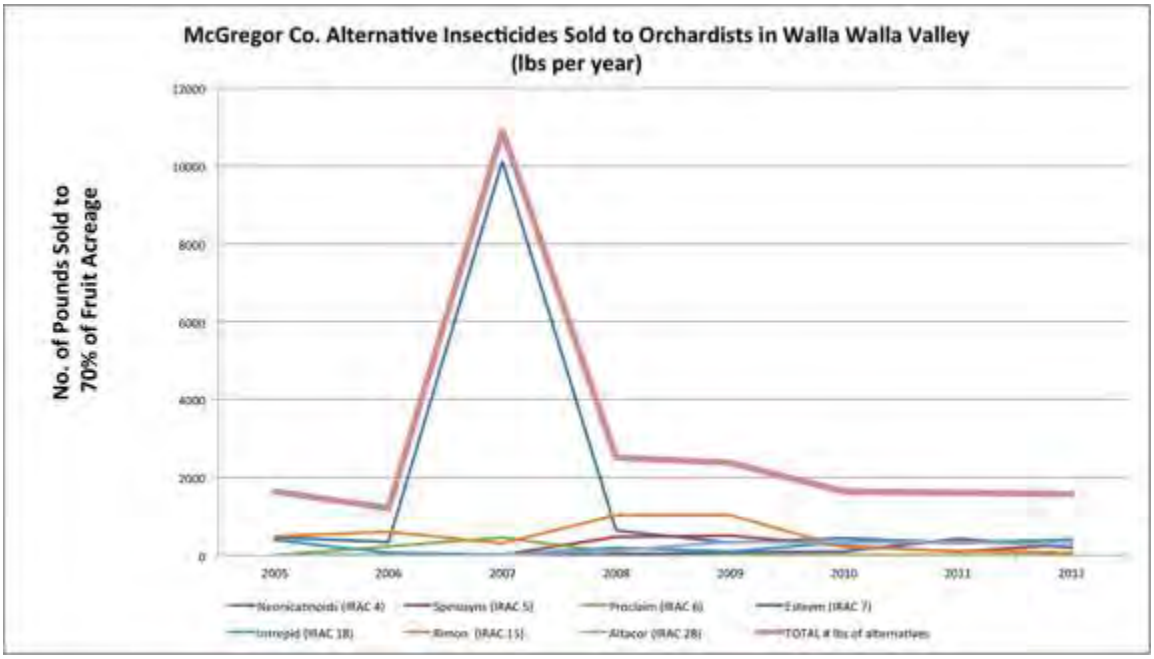


Figure 5. Annual alternative chemistry sales sold to orchardists in the Walla Walla Valley

representing more than 70% of the acreage in the Walla Walla Valley

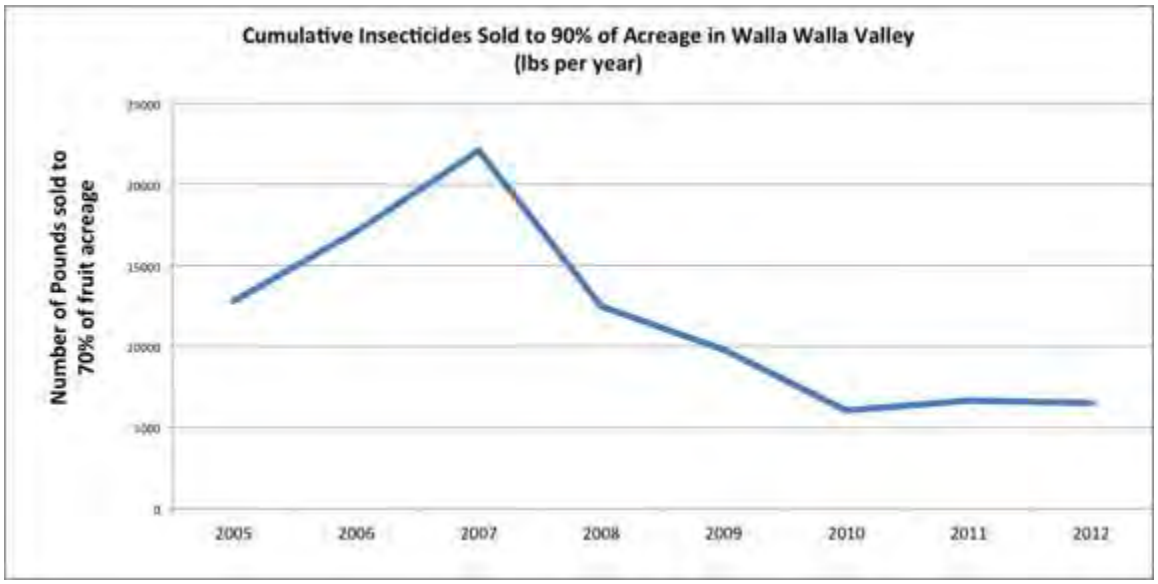


Figure 6. Cumulative insecticide sales to orchardists in Walla Walla Valley representing ca. 90% of the acreage in the Valley.

- Insecticide sales records were obtained from The McGregor Co. from 2005 till 2012. These records represent ~70% of the orchard acreage in the Walla Walla Valley and their market share has remained constant over the 6 year period.
    - Total Organophosphate (OP) usage in the Walla Walla Valley peaked in 2007 at ca. 11,500 lbs but has steadily decreased to 1,022 lbs in 2010 and has remained at this level in 2011 and 2012. This is more than an 1100% reduction in OP usage over the last 7 years.
    - New insecticides with alternative chemistries have been introduced in the Walla Walla Valley between 2005 and 2010 and cumulative usage of all chemicals used in the Walla Walla Valley has steadily decreased from a peak of more than 18,000 lbs in 2007 to 2653 lbs in 2010 and stayed at these low levels in 2011 and 2012. This is almost a 700% reduction in insecticide usage over the last 7 years.
- Insecticide sales records were also obtained from Blue Mountain Growers from 2005 to 2010 (data not shown). These records represent a constant ~ 20% of the orchard acreage in the Walla Walla Valley and made up of data from several competitors to the McGregor Co.
    - Total organophosphate (OP) usage in the Walla Walla Valley peaked in 2006 at ca. 3,514 lbs and remained constant till 2008. Since then OP usage has steadily

declined and in 2010, only 2,426 lbs were sold. This constitutes a 145% reduction in OP usage over the last 5 years.

  - Blue Mountain Growers usage of insecticides with alternative chemistries in the Walla Walla Valley has been increasing steadily since 2005 (~245 lbs) and peaked in 2008 (~820 lbs) but declined slightly in 2009 and 2010 (~635 lbs).

- Overall, total insecticides sold in the Walla Walla Valley and applied to ~90% of the fruit acreage has steadily decreased from a peak of ~22,100 lbs in 2007 to ~6,060 lbs in 2010 and stayed near this level in 2011 and 2012. This constitutes a 364% reduction in chemical usage by weight.
- Growers were educated on Feb 5, 2012 at the BMHS annual Research and Extension meeting in Milton-Freewater. (67 growers and 5 field men attended the workshop). (http://extension.oregonstate.edu/umatilla/mf/february-1-2012)
- The reduction in the number of "hotspots" from 9 to 7 in 2010 was evidence of the success of the codling moth mating disruption program and this has been further reduced by 1 in 2011/12.
- An approved IRB (Internal Review Board – exempt from Human Subjects) survey was conducted to show how well the information is being received, understood and implemented and changing behavior of the growers. In all instances, the survey indicated more than 90% acceptance and implementation by the growers who are either being sent or accessing the data.

| Parameter rated by Growers | Rating 2008 | Rating 2010 |
|---|---|---|
| Awareness of the Milton-Freewater OSU Extension Website. | 3.9 | 4.3 |
| How well the Milton-Freewater OSU Extension website is organized. | 4.4 | 4.2 |
| How well the different aspects e.g. economics, establishment, management, etc. of their crop are covered. | 4.1 | 4.1 |
| Quality of the technical information contained on the website. | 4.5 | 4.3 |
| Application of this information in their farming operation. | 4.6 | 3.7 |
| Their ability to accurately target pest and disease sprays for their crop ***since*** the installation of the Valley Weathernet. | 4.1 | 4.0 |
| How well the Valley Weathernet information has influenced the ***frequency*** of their chemical applications. | 4.0 | 4.1 |
| How well the Weathernet information has influenced the ***timing*** of their chemical applications. | 4.3 | 4.1 |
| How beneficial the Weathernet has been to the economics of their operation. | 4.1 | 4.2 |
| Quality of the Internet & Weathernet training sessions provided by OSU Extension to date. | 4.3 | 4.2 |

**Apple Maggot in Pendleton**

***Situation***:

- Apple maggots constitute a fruit quarantine threat for exporting apples to many destinations, including California. This pest is now in Pendleton so the ODA (WORK ACTIVITY – Dr Paul Blom) monitors traps accordingly. The traps are read on a regular basis (WORK ACTIVITY – Contractors) and problem areas identified.

***Action:***

- Apple maggot hotspots were treated with target insecticides including a spinosad (Conserv SC) and an imidacloprid (Lada 2F). In addition, several problematic trees were removed by tree removal contractors. Additional saturation trapping has been implemented along the Oregon State line (WORK ACTIVITY – Dr Paul Blom) and public awareness has been raised through the television media and press releases (WORK ACTIVITY – Dr Clive Kaiser).

***Results/ Impact:***

- All trees (30+) in the Blue Mountain Complex were treated with both foliar (on a bi-

weekly basis) and a single ground application of registered homeowner products. These were decided upon in conjunction with the ODA for maximum efficacy and safety of the home owners.

- In Pendleton, the integrated approach has resulted in a dramatic decrease in the number of apple maggots trapped from 137 in 2006 to 6 in 2007 and only 2 in 2008, 3 in 2009, 4 in 2010, another 4 in 2011 and 0 in 2012. It has been concluded that the spread of this pest has been contained in the Pendleton area although eradication is still the key. Another three years of 3 finds will be required to have Pendleton delisted as a problem area.

**Valley Integrated Plant Protection Center's (IPPC) Weathernet (VIeW)**

***Situation:***

- This program maintains an informational network of real time data easily accessible to growers through the Internet and is housed on the OSU Extension Website for Umatilla County (http://extension.oregonstate.edu/umatilla/mf/index.php). Weather stations record several environmental data and model data from seventeen orchards distributed throughout the Valley (Work Activity – Dr Len Coop) predicting the development of several pests and diseases. This information is essential for precise timing of insecticide and fungicide applications when needed.

***Action:***

- Workshops are given twice a year at the Blue Mountain Community College (Work Activity – Dr Clive Kaiser), helping growers become familiar with the website and Weathernet and reminders emailed to growers on an ad hoc basis reminding them of changes. An average of 12 growers attended each workshop.
- Examples of course work provided included a detailed explanation of how to access the weather data through the OSU Extension website http://pnwpest.org/MF/ as well as a detailed explanation of how to use Degree Day Models http://pnwpest.org/wea/weaexp.html

***Results/ Impact:***

- Softer chemicals are being used and spray records have shown that growers now use horticultural oils and Rimon (ovicides) and Delegate (larvacide) extensively.

**Don't Bug Us Campaign**

***Situation:***

- Abandoned orchards and backyard and other rogue pome and stone fruit trees tend to harbor pests that then can spread to commercial tree fruit crops. OSU Extension launched an ambitious program, along with County Commissioners and Milton-Freewater City Council to raise awareness of the problem and institute legislation and a control body to reduce the risks associated with these untended trees. All the collaborators united in their support of this program and landowner education is a key aspect of this program.

***Action:***

- County Ordinance was written and passed and co-adopted by the City Council of Milton-

Freewater. A county Pest Control Board has been established, together with a Pest Control Officer (Work Activity – Darrell Hannan) to monitor and address any complaints lodged about pests and diseases arising from problematic trees.

***Results/Impact:***

- In 2007 in excess of 100 home garden fruit trees were removed in and around Milton-Freewater. In 2008, another 276 problematic trees were removed. In 2009, 53 homeowners in Milton-Freewater were educated at a public meeting. In 2010 another 56 homeowners were educated at two public events held at the Albee room in the Public Library (Work Activity – Dr Clive Kaiser). In addition, public notices were posted weekly in the Valley Herald and the Union Bulletin on Sundays informing the public of their requirements and responsibilities to control the pests and diseases in their home garden fruit trees. In 2010, Trees were also distributed to more than 380 home owners in exchange for removing their fruit trees.
- In 2011 another 325 trees were distributed to additional homeowners who removed their fruit trees as part of this program. In 2012, 435 trees were distributed to home owners in the Milton Freewater area.

**Stinkbug Monitoring**

***Situation:***

- Several different stinkbugs are known to affect fruit crops. Of these the brown marmarated stinkbug is probably the most devastating and trapping for this pest is imperative

***Action:***

- The trapper, Joe Roemer installed several different stinkbug traps at multiple sites in the Valley and these were reported on a daily basis throughout the growing season.

***Results/Impact:***

- To date, no Brown Marmarated Stinkbug have been found in the Walla Walla Valley. Other lesser important stinkbugs have been found but these are usually associated with alfalfa and only move into apple orchards when the alfalfa is cut. A swath of uncut alfalfa should be left between the fields and orchards to contain the spread of the insects. These may then be treated selectively for stinkbug control.

**Spotted Wing *Drosophila (SWD)* Monitoring**

***Situation:***

- The first positive finds of the SWD were found in late fall of 2011. These were only in raspberry home gardens.

***Action:***

- It was decided to increase the number of traps for SWD in the Valley by a factor of several hundred. These were read by the trap counter, Joe Roemer and additional help was utilized from summer interns, Stephen Over & Kasey Erm to help with the monitoring and trap evaluations.

***Results/Impact:***

- SWD was found in cherries in the Walla Walla Valley for the first time in 2012. This was alarming and resulted in the Extension office having to make recommendations and modifications to the spray programs for cherry fruit fly and SWD control.
- Several growers were found to be using chemicals that are ineffective against SWD and they were educated accordingly as were the field men recommending the use of these ineffective products.
- A cleanup spray of Dimethoate was recommended to cherry growers and in the light of the extremely heavy crop that was nor harvested this year, this spray was even more important. Monitoring will continue in 2013 and the situation adapted to accordingly.

## GOALS AND OUTCOMES ACHIEVED

- All goals and objectives were met or exceeded as demonstrated under the Impacts of each of the above programs. The project was a tremendous success and has impacted positively on the growers, homeowners and environment in terms of chemical sprays and their frequencies.
- Data from 2010 season were used as a benchline for the 2011/12 seasons and all chemical improvements were carried forward. Indeed, this has resulted in the Walla Walla Valley being recognized nationally by NOAA fisheries, which sent a letter of acknowledgement for the incredible successes we have achieved in reducing pesticide usage in the Valley and its obvious impacts on salmonoid and other aquatic organisms (cf Appendix 1).

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## BENEFICIARIES

- Growers (80+), fieldmen (5+), homeowners (>600) and the general public (3900+) were beneficiaries of the project and were educated in terms of quarantine pests affecting the specialty crops and fruit industries in the Walla Walla Valley.
- Clearly the chemical usage and frequencies in the Walla Walla Valley have been reduced logarithmically over the last 7 years. This is a direct result of grower education, encouraging the use of alternative chemistries and measuring the impact of these chemicals over time on pest populations and modeling these so that growers can reference their own orchards on an easy to read and understand Google map.
- Dr Clive Kaiser of Oregon State University was promoted to Associate Professor and tenured in 2012. This was due in part to the successes of these programs and the financial support made possible through this particular grant.

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## LESSONED LEARNED

- Growers need easy to use tools that offer quick references to their own situation. On-site training is critical to the success of these programs and tools to enable this were seen to be critical for growers to adopt the information and apply it.
- Regular updates help growers stay tuned to efforts and keep them sharp in terms of

consistently reducing their pesticide footprints.

- Despite assurances from a WSU research entomologist that the SWD would never be a problem in the Walla Walla Valley, SWD was identified as a pest of commercial cherry orchards in 2012. Additional trapping and monitoring were essential as well as raising awareness amongst growers, crop consultants and the public through phone calls, mailings and press releases. Future efforts will continue to monitor additional traps for the pest and early notifications are seen as key to controlling the pest if further outbreaks occur.
- The unexpected dramatic reduction in chemical usage and frequencies in the Valley between 2005 and 2010 were not just a one off thing since the low levels of pesticide usage have been sustained in 2011 and 2012.
- Pesticide cleanup events in collaboration with the DEQ have proven to be very successful with more than 20,000 lbs of chemicals being removed from the Valley. These rewards for doing the right thing keep the growers motivated.

**TITLE: ODA-S10 Expansion of Voluntary Food Safety Testing of Fresh Produce in the Pacific Northwest – *Final Report (Approved 2/20/2013)***

**CONTACT NAME: Kay Riley, Certified Onion Inc.**
**PHONE: 541-372-2600**
**EMAIL: kayriley@snakeriverproduce.com**

**PROJECT SUMMARY**

The reason and need for this project started in 2008. In that year some onion growers used pesticides that had not been approved for use on onions (off-label). This created a potential for the entire region to be quarantined. Due to the size of the onion industry in southeast Oregon and southwest Idaho (called the Treasure Valley) this would have been an economic disaster. In an effort to avoid this disaster a non-profit organization called Certified Onions, Inc. (COI) was created to promote the voluntary testing of onions. With the assistance of a grant from the Oregon Department of Agriculture the program was commenced in July of 2009. This project is a continuation and expansion of that project. The success of the projects has exceeded all expectations. In 2009 54% of all onions grown were tested for off-label pesticides with no positive tests. In 2010 the program expanded to include tests for off-label and labeled pesticides to determine if amounts in excess of the minimum residue level (MRL) existed. That year 69% of onions were tested. In 2011, the first year of this project, the program was expended to include a domestic screen and an international screen. This project resulted in 72% tested in 2011 and 84% in 2012. Also in 2012 the industry saw the need for increased pathogen testing and the number of tests jumped from 62 in 2011 to 239 in 2012 and is expected to double in 2013. The project uses the Ontario office of the Oregon Department of Agriculture (ODA) to take the samples and the ODA laboratory to provide the testing. In this way our growers are able to prove their onions were clear of pesticide residue and pathogens and therefore prevent an area wide quarantine. The economic benefit of preventing an area wide quarantine cannot be measured. In addition to the testing mentioned above the project has participated in a number of marketing and promotional endeavors. COI board members have traveled to the Pacific Rim with the ODA. They have manned a booths at the Produce Marketing Association conventions. They have sponsored a booth at the FOODEX convention in Japan. Also, advertising in various publications has been part of the marketing efforts. The following report regarding the PMA convention is provided by Kay Riley the Organization's chairman:

> Regarding the PMA convention, PMA stands for the Produce Marketing Association. They conduct two national conferences/conventions. Every year they have a conference specifically targeted at Foodservice, this takes place in Monterey, California. We attended in conjunction with the Idaho Eastern Oregon Onion Committee (Promotion Committee) at the Fresh Summit Conventions in 2010 and 2011. They sublet space in their booth to COI. In 2012 we had our own booth at the Foodservice Conference in Monterey. A large portion of our areas production goes into the

foodservice arena. The booth was very successful. We feel it is important to get our message out to the industry and this is a good way to do it. Casey Prentiss and Kay Riley attended the show in Monterey.

The following report on the FOODEX 2012 show in Japan was provided by Sal Nishii who acted as COI's Japan contact.

During the exhibition, representatives from 76 companies inquired about the COI onions at our booth. Of which we sorted out 25 inquiries as rather serious. Then we listed 13 of them as strong possibility for future business. I excluded the names of the individuals from those thirteen strong leads since the Japanese law is getting pretty tough in disclosing "private" data. Instead their job titles are shown. If you would like to know more detail you can contact me. Although there were a lot of trading companies who inquired, I do not think that they are serious. However, it was interesting to listen to those trading companies complaining about keen price competition among the importers on onions and they are looking for some value-added alternatives.

Two things that were interesting.
--Many visitors expressed strong interest in the white onion.
--Not too many visitors asked how expensive our onions would be after we explained that we are expensive. I think many of them saw value in the COI program and the merchandising ideas we talked about.

We plan to cover all the 25 companies between now and the end of June or so after we send out a thank you note this month.

Thanks again for your support and it was a good exhibition.

A table of contacts made in Japan is attached at the end of this report.

Summary:
This project has met and exceeded our expectations regarding the value of the services provided, food safety benefits and the marketing of Oregon products both domestic and international. The funds expended will have long lasting benefits.

**PROJECT APPROACH**
Certified Onion Inc. contracted with the Oregon Department of Agriculture for the selecting of samples and performing the testing. The ODA selected 834 samples and performed 219 tests under this contract.

Certified Onion Inc. advertised in two major publications, *The Produce News and The Packer*. Three ads were placed in The Produce News and two ads were placed in The Packer. COI members attended various conventions in Atlanta Georgia and Monterey California (Produce Marketing Association) and one international convention in Japan (FoodEx).

All sampling and testing data was entered into a database and all members were provided a complete printout of all their data. In addition, a copy of the official test certificate was provided to each member for tests they purchased. These certificates were in electronic format so they could be provided to their buyers.

After the close of the season each member was audited to determine 100% compliance with the testing requirement. All members were found in compliance.

This approach provides third party independent testing and tracking.

## GOALS AND OUTCOMES ACHIEVED

One of the major goals of this project period was to test 85% of the onion acreage. We fell slightly short of this goal at 84%. We also expected COI membership to increase to 75% of shippers. We have exceeded this goal with membership of 79%.

| | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|
| Members | 20 | 22 | 24 | 26 |
| | 61% | 67% | 73% | 79% |
| Off label Certificates issued | 180 | 36 | 38 | 51 |
| MRL/Domestic Certificates issued | | 190 | 177 | 164 |
| International tests | | | 6 | 4 |
| Total tests | **180** | **226** | **221** | **219** |
| Microbial tests | | 67 | 62 | 239 |
| Samples completed | 629 | 828 | 806 | 834 |
| Total acres tested | 11,793 | 15,923 | 15,912 | 16,789 |
| Percent increase | | 35% | 0% | 6% |
| Average field size | 18.9 | 19.2 | 19.74 | 20.13 |
| Yellow | 10,622 | 14,274 | 14,302 | 14,931 |
| White | 298 | 362 | 388 | 588 |

| | | | | |
|---|---|---|---|---|
| Red | 848 | 1,287 | 1,222 | 1,270 |
| Estimated total area acres | 22,000 | 23,000 | 22,000 | 20,000 |
| Percent of total tested | 54% | 69% | 72% | 84% |
| Estimated pounds tested @ 700 cwt yield | 824,810,000 | 1,114,610,000 | 1,113,840,000 | 1,175,230,000 |

## BENEFICIARIES

The beneficiaries of this project are the onion growers, packers & shippers, brokers, wholesalers, retailers and consumers of Oregon grown onions. In addition, every industry related to farming is a beneficiary.

The onion industry in Oregon & SW Idaho has a retail value of approximately $2 billion dollars. Any hint of a pesticide problem with onions grown in this area could be devastating to the Oregon economy.

## LESSONS LEARNED

We have continued to learn and grow during this project period. Better methods of sampling were used such as the samplers wearing Tyvek suits when entering the field. This prevents cross contamination in the event there is pesticide detected. We improved the marketing materials. Most of all we continued what had worked and what we had learned in the first project period and continued to make progress.

Japan Contacts:

| | Company Name | Job Title | Notes |
|---|---|---|---|
| 1 | Aeon Global Merchandising Company | Agri Products Buyer | Interested in possible merchandizing of COI. Would import themselves. |
| | Aeon Retail Co | Produce Department, Food Merchandising Planning Division | The largest retail company over 139 billion USD. He is fruit person but will discuss with vegetable buyer on red and white onions sold in one box. |
| 2 | Kanesue | Chief Produce Buyer | 25 store locations with over 600 million USD in sales. Has been the best customer for COI in the past. Liked the white and red onion combination idea. Will discuss the program when we visit them next. Also interested in prepacked 5LB bags for the yellow. |
| | | Product Planning Director President | |
| 3 | Beisia | Food Merchandiser Director and Managing Executive Officer-MD HQ | USD4billion retailer with 108 stores. Known for low pricing. Interested in merchandising COI as a brand. Would like to discuss packaging, sizing and |

| | | | |
|---|---|---|---|
| | | Manager Produce Division | all-open costing. 5 Lb prepacked bags of yellow with a wide size range. May want to import themselves. Strong interest. |
| 4 | Mitsukoshi Isetan Food Service | Managing Executive Officer - Queens Division<br>Executive Officer -MD Dept<br>Produce Buyer- MD Dept | One of the top high-end food retailers. Interested in selling yellow, white and red all together side by side in November and December. Need to contact the chief fresh food buyer, Mr. Ouchida ASAP. |
| 5 | All Japan Supermarket Association | Fresh Food Expert/Adviser | He proposes to member companies new products, new merchandizing. Would like to have a presentation from us on MD of COI. |
| 6 | Daimaru Kogyo | Leader Agri and Marine Product Team, Foode Materials and Processing Dept. Food Division | Would like to introduce COI to group companies such as Daimaru Peacock. Would import themselves. Could also use COI onions for Deli products. Introduced by ATO. Would like to participate in the Red/White onions program. |
| 7 | Trial Company | Assistant Buyer, Produce Line, Produce Division | 131 stores with almost USD3 billion in sales. Costco type discount stores. Took samples. Await an appointment. |
| 8 | Kitchen Jiro | President | 25 restaurants. Would like to purchase white onions. |
| 9 | Super Seimiya | Owner/President | 16 stores with $330 million in sales. Handled COI onions in spring 2011 before the earthquake. He ordered 4 pallets on site and would like to continue the program in the future(against the buyer's feeling) |
| 10 | Tokyo City Produce Company | Product Planning Manager | One of the first level wholesalers at Tsukiji. At present handles only Hokkaido onions. No import. Would like to propose to his boss COI onions. |
| 11 | Fuji Foods | Manager Overseas Business | Interested in frozen onion strips, 1/2" slices lightly blanched or steamed and frozen. Would like to have 5 LB of sample by air. Considering to use them for Bento lunches sold to 7-11 with different flavoring. Use over 1,000 tons a year. He speaks fluent English. Need to inform him the length of slices. Need to move fast. |
| 12 | Nakamuraya | Purchasing/Planning<br>Manager, Fast Food and Confectionery Division | Sells curry in retort packs. Would like to have a meeting with us. Uses Hokkaido onions now but ready to shift if possible. Would like to discuss quality, specs and price. One of the most famous manufacturers of curry. |

| | | | |
|---|---|---|---|
| 13 | House Foods | General Manager, Somatech Center | Probably the largest curry roux manufacturer. Interested in using large bulbs. Interested in knowing seed planting space. |

**TITLE: ODA-S11 Controlling Orchards Pests on Non-Commercial Hosts in the Columbia Gorge – *Final Report (Approved 2/20/2013)***

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## PROJECT SUMMARY

The overall goal of this project was to reduce the risk of pest infestation in commercial specialty crops from non-commercial hosts, thus ensuring access to important export markets. These markets are significant for the specialty crops grown in this area. Cherries, pears, and apples are each threatened by one or more pests that can result in closed or restricted entry of markets outside of Oregon. Furthermore, producers are striving to implement IPM programs and reduce pesticide use in order to address environmental concerns. These efforts are often confounded by infestation of commercial orchards by pests originating in unmanaged home fruit trees and naturalized seedling trees. The recent introduction of spotted wing Drosophila has intensified this situation.

This project promoted voluntary tree removal, encouraged by an incentive program for tree removal, and provided education to home fruit growers to improve pest control on remaining trees. Awareness of the situation and participation was increased through general and targeted intensive outreach programs. A similar approach has been used with good results in Hood River County to reduce the impacts of home fruit trees on commercial pear and apple growers there. This project expanded those efforts to include cherry and the fruit producing areas of Wasco County, which is the major cherry producing county in Oregon. The collaborative effort between Columbia Gorge Fruit Growers (CGFG) and Oregon State University (OSU) Extension Service enhanced the ability of both to address this need.

## PROJECT APPROACH

The staff of Columbia Gorge Fruit Growers completed the first project in the grant, which was the development of a brochure to be used in an outreach program to property owners in both Hood River County and Wasco County. The content of the brochure was subsequently reviewed by the OSU Extension Agents, Steve Castagnoli and Lynn Long. Both agents suggested changes and additions which were incorporated. The accuracy of the information contained in this brochure is important to the project since it is used as an introductory and educational tool into the community.

The brochure was printed and mailed by to 12,005 residences in Hood River and Wasco Counties in March 2011. GFG office staff prepared two additional mailings of brochures. One mailing of 656 brochures was completed on April 25, 2011; and one mailing of 535 brochures

was completed on May 18, 2011.

CGFG placed a display advertisement in the Hood River News and The Dalles Chronicle in May, 2012 regarding the program. It was decided that this would be an effective way to reach more property owners and educate them about pest management practices. The advertisement was a redesign of the brochure.

Steve Castagnoli, the Hood River County Extension Agent, conducted three Fruit Tree Management Workshops; one for the master gardeners and two which were opened to the public. He also completed the pest management guide for homeowners to aid in maintaining their trees pest and disease free. Steve also submitted two feature articles and two press releases to the local newspaper.

Each year, Steve estimated biofix dates for codling moth and first emergence dates for western cherry fruit fly; and prepared weekly spray start date reports accessible through phone and Extension Service webpage (http://extension.oregonstate.edu/hoodriver/agriculture.)

Lynn Long, Wasco County Extension Agent submitted an article to *The Dalles Chronicle* (published March 20, 2011), reminding homeowners to care for their trees and explaining the program. Lynn conducted a workshop for the mater gardeners in 2011 and then enlisted them as ambassadors for the program. The master gardeners distributed the information at a local garden center, farmer's market and the extension office. The Extension offices in both Wasco County and Hood River County responded to walk-in, call-in and email inquiries from property owners for advice on fruit tree pest management.

CGFG hired three technicians to work on the program. The first year they canvassed the neighborhoods in Wasco County and created a database of 274 property addresses with visible fruit trees, adding to the database previously created of 788 property owners with fruit trees in Hood River County. These databases were utilized to target the owners with notices for workshops and reminders to maintain their trees pest free. The technicians also identified tree varieties for owners that were unsure of the type of fruit trees on their property; cut down trees for owners that were unable to do it themselves; and verified the removal of trees.

In August and September of 2012, a field technician was tasked with visiting each property and attempting to visually inspect the fruit trees. One of the planned projects of the grant was to contract with both Hood River and Wasco County Weed & Pest Departments to inspect each property in the database. Unfortunately, Wasco County does not have an ordinance regarding pest management in fruit trees, therefore had no authority to enforce a pest management policy. Since Hood River County does have an ordinance regarding pest management, CGFG has paid the County for this service for several years, but staffing the position for two weeks is always difficult. The County must follow hiring procedures and they were unable to locate an individual

to fill this short-term position during the grant period. This was a major development that negatively impacted the project because of our inability to confirm if the project was effective in educating the public regarding pest management. The CGFG field technician was able to view only a small percentage of the trees because of a lack of access to the properties.

During the two years of the project, 98 property owners voluntarily signed up for the tree removal project, with a total of 768 trees. At the end of the project there had been 534 pear, apple and cherry trees removed from 61 properties in the two counties. There were 37 properties that the owners either changed their minds, sold the property, and a few properties that the removal of the trees was too difficult. These properties will remain on the permanent list and will continue to receive information each year.

A side benefit of the project was the number of phone calls received from individuals reporting neighboring properties with fruit trees that are not being maintained pest free. We added these properties to our database and are following standard procedure for dealing with them which is that Hood River County staff works with the Extension Agent to inspect these properties and write compliance letters to the owners.

CGFG developed a map of Hood River County detailing the location of apple orchards for the apple maggot trap program. An update of the location of apples orchards had not been conducted for over 15 years. This map was delivered to Hood River County Weed and Pest Control department and was used in determining the location of the apple maggot traps. The Hood River County staff reported that they moved about 1/3 of the traps to new locations because they were no longer in close proximity to an apple orchard. The remaining 2/3 were in correct locations. There are 44 traps placed at this time that are checked throughout the season by Hood River County Staff. This is a program that is required by the Oregon Department of Agriculture which allows growers to ship their apples out of the county.

CGFG conducted a very intensive spotted wing Drosophila (SWD) trapping program that was managed by Steve Catagnoli, Extension Agent; and Dr. Peter Shearer, Entomologist at the Mid-Columbia Area Research and Extension Center. In 2011, 82 traps were placed in Hood River and Wasco Counties and in 2012 the number was increased to 113 traps. The primary objective of this project was to conduct an area-wide monitoring program for SWD in the mid-Columbia region. The monitoring program provided information on SWD first emergence, overwintering locations, seasonal distribution and population trends. Monitoring results will also help refine the existing degree-day model for SWD.

## GOALS AND OUTCOMES ACHIEVED

The measurable outcome of this project was to reduce the number of unmanaged fruit trees in Hood River and Wasco Counties. Based on surveys conducted by the CGFG, it was estimated that there were 1,051 residential properties with unmanaged cherry, pear, and apple trees in the

area. The goal was to reduce that number by 60% to 420 in two years. CGFG tracked the progress toward this goal by maintaining a database of residential owners and addresses, the number of fruit trees on their property, logging the number of trees removed, or indicating that the property owner had stated that they would maintain the trees pest free.

Working towards the goal of reducing the number of unmanaged trees, CGFG collaborated with 61 property owners to remove a total of 534 trees. The remaining property owners received the brochure, workshop notices and yearly reminders of the importance of pest management. Property owners were provided with a copy of the pest management guide when requested. As illustrated in the past, educational material substantially reduces the number of unmanaged fruit trees.

Following the original mass mailing, 97 property owners contacted CGFG to participate in the tree removal program. Of these 97, 86 were property owners that were not in the database which had been established from a grid search conducted in the two counties. Although all 97 owners did not remove their trees as originally planned, we now will be able to target them for yearly informational mailings. If through further contacts any change their minds and remove their trees, CGFG will honor the commitment of a payment for tree removal.

Due to the inability of either county to conduct a door-to-door inspection, CGFG conducted a limited survey. The county has the authority to enter a property and inspect the trees, CGFG does not have this authority and could only inspect trees that were visible from public property (sidewalk or street). It was discovered that only 20% of the trees were in proximity to public property and could be examined with enough certainty to determine if they were infested with any pests. Since we did not have full access to the fruit, we do not have the ability to fully determine the effectiveness of the educational campaign. We do know from years of working with property owners in Hood River that the educational aspect results in a very high level of compliance.

Experience has taught us that pest management of non-commercial trees is not a project completed in one or two years, but a yearly effort on part of the industry. The commercial growers dedicate funds to this project each year, knowing that one unmanaged tree can negatively impact their pest management practices, the quality of their fruit and the value of their product.

**BENEFICIARIES**

In 2009, tree fruit and other specialty crops produced in Hood River and Wasco Counties occupied about 26,000 acres and had a combined annual farmgate value estimated at $111 million with about one-third of the total production going to export markets. Associated economic activity including that from first-handlers increased the total value to nearly double the farmgate value, resulting in significant contributions to the local and state economies.

Maintaining access to export markets is crucial to the economic viability of these industries and the estimated 450 producers directly involved in growing these crops. The primary beneficiaries of this project are the specialty crop producers in the Columbia Gorge area. In addition to maintaining important markets, this project helped reduce pesticide use in fruit production. These economic and environmental impacts also benefited the non-agricultural communities in the Columbia Gorge area. Furthermore, home fruit tree growers now have better results with managing pests and a convenient way to replace high-maintenance fruit trees. Because of these diverse benefits, this project has broad stakeholder support.

**LESSONS LEARNED**

Columbia Gorge Fruit Growers has conducted a Backyard Tree Pest Management project for ten years in Hood River County. The purpose of this grant project was to continue in Hood River County and expand the project to Wasco County. Previously, 26% (275) of the property owners in Hood River had removed their fruit trees and during this project an additional 23 property owners removed trees for a total of 28%. We have discovered that 100% of the individuals who volunteer to remove their trees do so because they have not managed them, so we are assured that these trees will no longer be a problem to the industry.

Hood River County has an ordinance that requires fruit trees to be managed pest free, which we believe has contributed to a high compliance level. In our 2009 survey, only 32 properties of 788 that were surveyed required a compliance letter. We believe that this is a result of yearly reminders, newspaper articles, radio appearances and an ordinance that is enforced by the county.

In contrast, Wasco County has no ordinance and we did not experience the same level of community support in the project. With a database of 322, 10% (32) of the owners removed their fruit trees. We do not have accurate data on compliance because Wasco County has no ordinance to enforce, therefore could not inspect properties. Through a limited inspection conducted by CGFG, we were able to inspect approximately 20% of the trees.

When writing this grant, we were depending upon the cooperation of both counties to inspect the fruit trees each year. Since Hood River County had supported this endeavor for the previous three years, we did not anticipate that they would be unable to continue. Economic pressures resulted in reduced staff so they were unable to divert a staff member to the project and their hiring practices are too cumbersome to allow for hiring staff for a month or less. We had conversations with Wasco County prior to the grant and they indicated that they were willing to participate, but the final decision reflected the absence of a regulation regarding pest management.

The educational aspect of the project proceeded as expecting, with interest shown by the local media which resulted in invitations to speak on the radio and articles in the newspaper that were not initiated by project management.

**TITLE: ODA-S12 South Coast Cranberries – *Final Report (Approved – 02/07/2014)***

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**PROJECT TITLE: South Coast Cranberries**

**PROJECT SUMMARY:**
When we started this cranberry project, we had two main goals.

- One was **marketing** --- exploring markets (especially in Asia) so that growers in Oregon could receive a higher price for their product - rather than being trapped in the volatile commodities market.

- The other goal was to **provide direct help** to growers to be more profitable in their operations. This included 10 on-the-ground projects such as irrigation efficiencies, sanding bogs for increased productivity, encouraging reduced-risk-pesticides, and other on-farm innovations.

We had been working with South Coast cranberry growers for almost a decade before receiving this Specialty grant, coming to gradually understand growers' operations and their challenges. In interviewing growers, we wanted to know how we could be helpful in preserving agriculture in our little corner of Oregon. Growers told us that they were "whip-sawed" by huge price swings in the commodities markets. Prices paid to growers for a pound of cranberries had varied from as low as 15 cents a pound to as high as $1.10 a pound during the past decade. This is a financial rollercoaster for the producers, and makes long-range planning or any hopes for expansion nearly impossible.

They suggested looking at ways to expand or broaden the market for their products. That was the impetus for starting this grant.

The direct help to growers with the 10 on-the-ground projects came from cranberry producers which suggested ways they could be more profitable in their day-to-day operations.

**Details:**
**Marketing:** We believe the next natural expansion for Oregon cranberry marketing is **Asia.** Japan, Korea, China and India are all potentially huge markets, and all are under-utilized and poorly understood now. We hired a market research company -- Sarah Wang of Zenture, a Chinese national -- to go to China and investigate the opportunities. Sarah made 3 trips to China, and produced four reports analyzing the opportunities and pitfalls of selling fruit there.

A second part of the **marketing** strategy was to commission a film /DVD on our Wild Rivers Coast food producing region. To tell the story of our family farms, with their sustainable cranberry production and salmon-safe farming methods, we produced a 7 minute film/DVD about growing cranberries on Oregon's South Coast. (The DVD is available on request. It's pretty good. ) Our focus was on the high sense of stewardship of our growers; & their efforts to grow cranberries ***and*** encourage wild salmon on their ranches. This area is already marketed as "America's Wild Rivers Coast." This film / DVD has been shown at several trade shows in Korea, China, and Japan.

**On-farm improvements:** We did a variety of projects, helping the growers with their needs. Projects included irrigation efficiencies; plants to improve bee habitat and pollination; reduced risk herbicides & pesticides; deploying fire worms traps; and sanding cranberry bogs.

## PROJECT APPROACH

### Marketing :

Independent Oregon Cranberry Grower Scott McKenzie and our marketing agent traveled together to Asia (China, Japan, and Korea) to meet with buyers, chefs, and food distributors (November- December 2012). They were in Asia for almost three weeks. Please see the attached summary by Scott of their activities and progress. (Mike Stone of the Stone Group took over after Sarah Wang).

Scott and his group of growers have sold over 300,000 pounds of cranberries in Asia since this Specialty grant started. The price they have received for their crops is ***twice what they would have received*** on the domestic market. These sales are to NEW, previously untapped markets.

We were able to make good progress on a number of other fronts: Mike Stone, our marketing sales consultant for South Coast cranberries - came to Oregon for a week and accomplished several things: He met with in-bound Korea food-buyers at an ODA-sponsored event in Portland. He made valuable contacts for future sales in Korea. He also was able to come to the South Coast, where he interviewed many cranberry growers, visited their farms, sampled their products, and coordinated potential sales in Asia for Oregon cranberries. Scott McKenzie was also able to go to Portland for the Korea event - and met with food-buyers from Korea.

Sarah Wang of Zenture, a former investment banker in China, traveled to Asia 3 times on behalf of Oregon cranberry growers, and spent more than 30 days there analyzing markets & meeting with food distributors and retail outlets. She took samples of our products to over 50 trade shows in China.

She also produced 4 reports on the challenges of marketing Oregon berries in China: (Complete reports have previously been sent to ODA).

Some of her key findings:

- Concentrate marketing efforts on housewives, who do most of the shopping, buying, cooking.

- Attend as many Food Trade Shows as possible to showcase Oregon cranberries (and provide samples).
- Consider all forms of cranberries -- including juice, sweet & dried, IQF, and even "pharmaceuticals," cranberries condensed into a pill form for health benefits .

Also in **Marketing:** We produced a DVD /video on South Coast cranberries, shot by an Oregon film company, **Green Fire Productions**. The video is seven minutes long. We have distributed about 150 of the 200 copies that were produced; plus it is available on YouTube (GreenFire Productions - Cranberries - http://youtu.be/M7loKr2vdOk).
Other activities during this grant:

- We met with about 40 growers who attended a "cranberry round-up" in Bandon in early 2011. and showed them a "sneak preview" of the cranberry DVD. Many growers have approached us with additional ideas.
- Beth Pietrzak of our staff did a presentation at the annual "Cranberry School" in Bandon in February, 2011 on cranberry innovations.
- We convened a group of growers to look at Food Alliance certification. This will enable growers to "separate themselves" from the commodities market, and open up additional possibilities for "Value-Added" foods opportunities. 15 growers plus our farm planner, Beth Pietrzak, attended.
- We sponsored a grower to attend a trade show in Portland, where he made contacts for selling South Coast cranberries in either IQF, or even as an ingredient in a "healthy soda."

**On-the ground Activities:**
We concentrated on implementing 10 on-the-ground activities . These included the purchase of reduced-risk pesticides; pumps & pipes for irrigation efficiencies; and the deployment of "traps" to catch fire worms, girdlers and other pests. We also had three general meetings with growers (both Ocean Spray and Independents) to share information about reduced-risk pesticides. (Some of the "harder" pesticides/herbicides are being phased out by the EPA).

The projects with the fireworm traps and reduced risk pesticides are already yielding results for growers. For example, if growers were previously applying multiple applications of pesticides for fireworms, and these traps show the insects are not present later in the season, that is a significant savings for growers (if you don't need to spray, you don't need to pay).
Several growers reported that the irrigation efficiencies provided by the grant (pumps, pipes, etc) paid off for them this harvest season. They are using less water and less electricity to pump water -- with a considerable savings . Oregon's Cranberries were also featured in the Fall, 2011 issue of ***Oregon's Agricultural Progress,*** published by OSU Extension Service.

**GOALS AND OUTCOMES ACHIEVED:**

- We wanted to sell cranberries in Asia - and we have achieved that goal --- 300,000 pounds during the grant period – plus continuing opportunities for sales from the contacts we have made in 4 countries. New countries where sales have occurred as a result of this grant: Taiwan; Korea; and Japan. In addition, the international contacts thru this Specialty grant have led to other cranberry sales in New Zealand and to Europe (via Canada). ). At the beginning of this grant (2010), we believe sales from Oregon cranberry growers to Asia were around 225,000 pounds for the previous three-year period. Through the Specialty grant, we have increased that number to 300,000 pounds. We didn't quite hit a 50% increase (our goal). It was more like a 33% increase. The main reason we didn't sell more was difficulties in China. Tariffs, barriers, cultural differences, and complicated customs regulations all inhibited sales. We were, however, able to establish new markets in Taiwan; Korea; and Japan --- countries where there had been very few, if any, sales in previous years.

- We wanted to produce a professional quality DVD to help market our unique cranberries on the South Coast, and we have done that. The DVD tells the story of South Coast cranberry growers and how their high-quality berry production is integrated into the landscape here. The DVD has been distributed in China, Japan, and Korea to potential food buyers. It has also been distributed in Oregon to growers hoping to establish new relationships and sales contacts. The DVD attempts to highlight the special nature and high quality of Oregon cranberries (redder, juicier, sweeter) compared to other berries on the international and domestic commodity market.

- We wanted to work with growers to implement on-the-ground projects on 10 farms, and we achieved that. We did a variety of projects including irrigation efficiencies; plants to improve bee habitat and pollination; reduced risk herbicides & pesticides; deploying fire worms traps; and sanding cranberry bogs. Irrigation efficiencies allow growers to save water and electricity (pumping costs). Bee friendly plantings around bogs help pollination in the spring. Sanding helps bog health and vigor, and benefits of sanding can last for 10 – 20 years or more. Given the nudge from this grant, many growers have switched to more "environmentally-friendly" pesticides and herbicides. This positions them for more opportunities for export, As the European countries and some Asian countries (notably Japan) have stricter requirements on food imports. Taken together, growers continue to innovate in terms of efficiencies and seeking out environmentally-friendly ways to produce cranberries.

**BENEFICIARIES:**

There are around 100 independent growers on Oregon's South Coast ( and another 100 or so who are bound to contracts with Ocean Spray.) These independent growers received the benefit of the research we did in Asia, to explore better paying markets (twice the price for their berries

– compared with the traditional commodity market). That price difference is a big deal at any time, but especially during the Great Recession, when some growers were losing their farms to bankruptcy. We are early in process of establishing a "beachhead" in Asian markets for Oregon cranberries, but we are started.

**LESSONS LEARNED:**

- It is not easy to market cranberries overseas. Especially in Asia, selling is completely dependent on long-term relationships, built slowly over time to develop a complete sense of trust.
- Tariffs, customs, changing administrations, port labors strikes, and availability of container ships all can influence the smoothness of sales and the timing for delivery of product as promised (timeliness).
- Each Asian country is different. Japan pays a good price for cranberries, but the market is somewhat saturated and already well-established. India is full of potential, but we are not sure if cranberries can be integrated with the Indian diet. Korea has tremendous opportunities, and willing buyers. There are already some Oregon-Korea partnerships in place for exporting both cranberries and blueberries. China has been characterized as the "Wild West." There are elements of uncertainty. Rules change. There are shifting alliances and "cartels" that control some of the goods flowing into China. Still, tho, lots of opportunities.

**TITLE: ODA-S13 Increasing Efficiency and Market Access with FoodHub – *Final Report (APPROVED 1/30/12)***

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*NOTE: Deborah Kane, Ecotrust Vice President, Food & Farms, was the project lead and primary contact on this project for the duration of the funding period. However, effective December 15, 2011 (the date of our final report), Deborah resigned her position with Ecotrust to pursue an opportunity to scale her innovative work on food systems on a national level. With Deborah's departure, Amanda Oborne, FoodHub Sales and Marketing Director, is now taking on the day-to-day management of the FoodHub project.*

## PROJECT SUMMARY

In October, 2010, Ecotrust received a one-year grant of $92,500 to support our project titled: *Increasing Efficiency and Market Access with FoodHub*. This has been a bi-state project serving specialty crop producers in Oregon and Washington.

FoodHub is an online directory and marketplace that makes it easy and efficient for buyers and sellers of regional food to find one another, connect, and conduct business. For chefs, restaurateurs and food service directors, FoodHub translates to fast foraging— they can find regionally produced products quickly and easily, get background on producers and make direct contact with the click of a button. For farmers, FoodHub means marketing made easy— they can develop sales leads and promote their specialty products to professional food buyers interested in sourcing from within the region.

The purpose of this project was to enhance the competitiveness of specialty crop markets in Washington and Oregon by resolving distribution and business bottlenecks that limit commerce among specialty crop producers and buyers. The project's specific objectives were to:

1. Provide specialty crop producers a simple way to provide general information about their business and market themselves, their stories, and their products.
2. Provide food buyers a simple way to provide general information about what they typically buy (allowing specialty crop producers to do market research), access information about specialty crop producers, and order specialty crops based on specific requirements (e.g. certification, proximity, distribution model, and price).
3. Diversify and create new market opportunities for specialty crop producers by increasing the number and types of food buyers purchasing their products.
4. Increase specialty crop producers' total volume or dollar value of sales.

Funding for this project was provided by the Specialty Crop Block Grant Programs (SCBGP) administered by the Oregon Department of Agriculture (ODA) and the Washington State Department of Agriculture (WSDA).

While the market for locally-grown food was once largely the domain of high-end restaurants, food buyers of all types are increasingly interested in purchasing locally or regionally grown products. These larger-volume and institutional buyers —such as public schools, hospitals, food service providers on college and corporate campuses, and retail stores— now have 'authenticity requirements' in addition to long-standing cost, quality, quantity, and delivery requirements.

Oregon (OR) and Washington (WA) specialty crop producers, with their reputation for high quality and significant production capacity, are in a unique position to capitalize on this burgeoning market. However, Ecotrust's in-depth exploratory research found that key structural barriers exist that limited specialty crop producers' ability to access this market, including the following:

- Most larger-volume purchasers source product through wholesale distributors such as Food Services of America, Sysco, and other broadline distributors.
- Specialty crop producers typically cannot individually meet the minimum order (volume) and uniformity requirements of these wholesale distributors.
- It is often infeasible for larger-volume purchasers to do business outside of their current, streamlined, supply chain model. For instance, many buyers can't receive multiple deliveries of products from individual suppliers throughout the week, or manage receipt and payment of multiple invoices from various individual producers.
- Highlighting production methods and authentic farm stories is often a key marketing strategy for specialty crop producers who seek to differentiate their products. Yet, sales to traditional wholesale distributors often result in a discontinuity of information flow, negating opportunities for many producers to receive compensation for the attributes and stories that differentiate their products.

Indeed, a product description and an SKU code are often the only information buyers have to inform their purchasing decisions. Yet in the age of product recalls, the ability to trace food back to its original point of origin is a business imperative. Moreover, being able to share the rich stories behind our food —the names of the farmers' kids, what led the farm family to switch to organic practices, how they knew when to harvest the cherries for maximum sweetness, which sweet onion producer always takes the blue ribbon at the county fair— provides a crucial competitive advantage to all those who merchandise locally/regionally grown specialty crops.

FoodHub was designed to serve a wide range of specialty crop producers in both OR and WA, and over the course of the funding period has been refined and improved based on close collaboration with these members. Ensuring efficient market access and regional competitiveness for these crops is vital to the states' agricultural economies. From the small farmers' market

vendor to the many larger members of a well coordinated tree fruit association or packing house, FoodHub accommodates a wide range of specialty crop producers as well as buyers. At every scale of operation, FoodHub provides business efficiencies and marketing opportunities that were not previously available.

This project was previously funded by an ODA SCBGP grant of $100,000 in 2009. Also, as noted above, this is a bi-state project serving specialty crop producers in Washington and Oregon, and it has been supported by WSDA SCBGP funding through a two-year grant of $250,000 (2009-2011). The project builds on work supported by two previous ODA grants (2008 and 2009) which were key to FoodHub's early development. Additional support for FoodHub research and technical development activities has been provided by U.S. Department of Agriculture (USDA) Rural Development funding, through both the Rural Business Enterprise Grant (RBEG) and Rural Business Opportunity Grant (RBOG) programs. One reason that FoodHub has been so enthusiastically embraced throughout the region is that it complements, rather than duplicates, existing efforts and is well integrated with other economic development activities throughout the state.

Each grant that has supported FoodHub has a specific scope of work that is defined based on collaborative planning among FoodHub staff and project partners, and that responds to the particular needs of the tool's stage of development. From the beginning, FoodHub has been developed in close consultation and collaboration with colleagues and partners throughout Washington and Oregon, including government agriculture agencies, farmers and producer groups, non-profit organizations, and private businesses. Each of these partners have been actively involved in all stages of development, from early design concepts to the project's work plan and business requirement, to project evaluation and future planning. This has ensured that the project unfolds in a stepwise, strategic fashion that incrementally builds on previous work in a comprehensive overall project plan. At the same time, a critical element of FoodHub's success as a tool for specialty crop producers and buyers, as well as other users, is its ability to nimbly respond to the feedback of our members. The close involvement of partners throughout the process has provided vital feedback that informs the considered evolution of FoodHub's ongoing work plan.

## PROJECT APPROACH

This project builds on several years of work by Ecotrust as well as numerous initial investments by individual, corporate, government, and foundation sources. At the beginning of the funding period, FoodHub Version 1.0 had been successfully launched in February 2010, followed by Version 2.0 in September 2010. With the present project, we built on this strong foundation through a range of activities:

- Engagement of Ecotrust's network of partners, including government and nonprofit organizations, business, professional and trade associations, and individuals.

- Close personalized work with "early adopters", such as participants in Ecotrust's longstanding *Guide to Local and Seasonal Products for Oregon and Washington*, to establish FoodHub's initial membership base representing a wide variety of users.
- Involvement of key partners and allies throughout the region in FoodHub Ambassador program, which helped to provide information about FoodHub within specific groups and geographic areas, and assistance with recruitment and registration of FoodHub users.
- Targeted outreach and marketing efforts to recruit, train, and support FoodHub members, including on-site training sessions specific to specialty crop producers and buyers, promotion of the tool at farm conferences and meetings of trade associations and professional food buyers.
- Mid-point evaluation of FoodHub's business model and strategies, incorporating an analysis of feedback and data from FoodHub's current membership and stakeholders as well as research regarding other internet business models and best practices relevant to FoodHub.
- Development of new technical features, including iterative usability testing and modification.
- Development of customer incentive and referral programs to promote user-to-user recruitment.
- Implementation of a monitoring and evaluation system, including focus groups, surveys and website mechanisms to solicit ongoing FoodHub user feedback.

During the project period we launched an upgrade to FoodHub Version 2.0 (in February 2011) and released Version 3.0 in July, each one adding improvements to existing functionalities and introducing new features (detailed below). We also conducted outreach campaigns to create broad awareness of FoodHub, featuring on- and offline marketing, advertising, public relations, event sponsorship, and public speaking. A specific focus of strategic public relations outreach was an emphasis on both consumer and trade publications, to raise the profile of FoodHub's utility for specialty crop producers and buyers.

ODA's early investment has been critical in making FoodHub the effective, vibrant, thriving online marketplace it is today. **To date, we have 735 Oregon and Washington specialty crop producers registered as FoodHub members, as well as 1144 Oregon and Washington food buyers registered.** As noted in our October quarterly report, while these figures are lower than our original goals for the project period, specialty crop user members show strong growth. The 2010 annual member survey found 260 Specialty crop producers in Oregon and Washington were registered FoodHub members, a number which has nearly tripled. Registered members who are specialty crop buyers have more than tripled, from 338 as of the 2010 annual survey.

Also as noted in our October report, these figures likely under-represent the participation of specialty crop producers and buyers in the FoodHub system. For the purposes of this grant, we have consistently only counted specialty crop producers as those members who register as "farmers", and would thus not include a diversified dairy or a ranch producing and marketing

specialty crops in addition to dairy and livestock. Today FoodHub boasts nearly 3,000 members, the vast majority of which are buying or selling specialty crops in some form.

We are fortunate in that there are many other deeply vested partners who share a sense of responsibility for and ownership over FoodHub's success. FoodHub was created in consultation and collaboration with colleagues throughout the region, including producer groups, non-profit organizations, government agencies, and private businesses, each of whom commented on early design concepts or today work in partnership with us to disseminate the resource to their constituencies. These colleagues and allies across Oregon, Washington, and the greater region continue to help us promote FoodHub as a key tool for strengthening connections between regional food buyers and sellers.

Adding a membership category for Associate members also served to engage a whole host of project partners, including universities (e.g. Oregon State University, and the Washington State University Rural Community Vitality Team), trade associations (e.g. Northwest Food Processors Association), commodity commissions (e.g. Pear Bureau Northwest), advocacy organizations (e.g. Healthy Active Schools—Centennial School District; Northeast Oregon Economic Development District; and Washington Sustainable Food & Farming Network's Fresh Food in Schools project), and many others. Partners participate at various levels, with some simply joining FoodHub to take advantage of its many features, while others are deeply engaged in ensuring FoodHub's success. As but a few examples of the later, SYSCO Food Services supported the growth of FoodHub by initially underwriting memberships in the tool for Oregon and Washington producers, while Rotary First Harvest has supported FoodHub's growth by encouraging food banks and emergency food assistance organizations to use FoodHub as a tool to procure fresh fruits and vegetables.

In order to ensure that funds were used to solely enhance the competitiveness of specialty crops, we monitored this ratio as originally planned, comparing actual expenses against the project budget on a quarterly basis throughout the project period. With each quarterly report, Ecotrust submitted a tracking sheet showing the cumulative expenditures of Specialty Crop funds and matching funds. (The tracking sheet submitted October 28, 2011 with our final progress report is attached here for your reference to support the example below.)

Using the figures from our final performance report, we calculate that specialty crop producers (735 in Oregon and Washington) and buyers (1144 in Oregon and Washington) comprise nearly **63 percent** of FoodHub members (calculated on a base of 3,000 members).

Over the funding period of Ecotrust's 2010 SCBGP grant from the Oregon Department of Agriculture (October 1, 2010-September 30, 2011), we expended a total of $457,598 towards the development and implementation of FoodHub, of which $239,324 was matching funds from non-federal sources. In addition to the grant of $92,500 from ODA, FoodHub was supported

during this period by the second half of a two-year SCGBP grant from the Washington State Department of Agriculture, amounting to $125,774. Taken together, these two Specialty Crop grants represented nearly **48 percent** of total spending.

## GOALS AND OUTCOMES ACHIEVED

The project activities fell into three main categories: **technical development** (including the creation, testing, and release of new features); **outreach and promotion** (including training, member support, and marketing); and **monitoring and evaluation** (including ongoing assessment of user feedback and site functionality, research and implementation of best practices, and related adjustment of the project plan). Each of these three areas is addressed in detail below.

### Technical development

The grant period encompassed significant and far-reaching developments to FoodHub, with an upgrade to Version 2.0 and the launch of Version 3.0. Each launch incorporated additional changes, upgrades, and refinements to FoodHub based on member feedback and user testing.

**Version 2.0 upgrade—** released at FoodHub's one-year anniversary

- **New member category:** creation of Associate membership to engage commodity commissions, trade associations, logistics providers and many other associates who support specialty crop producers.
- **Free membership option:** the $100 annual fee was removed for basic membership for buyers, sellers and associates.
- **Fresh Sheets:** creation of a weekly bulletin, differentiated for buyers and sellers, emailed directly to members and also posted on the FoodHub blog. Fresh Sheets promote select specialty crop items that are either for sale or are wanted by buyers, and also feature product alerts, marketplace updates, and a weekly tip to help members use FoodHub most effectively.
- **Knowledge Base:** creation of a robust resource section where FoodHub members can access information designed to support sales of specialty crop products.

**Version 3.0—** launched July 12, 2011

- **Marketplace:** improved filter functionality to allow FoodHub members to sort byproduct type, distance or custom criteria with a single click.
- **Advanced Search Functionality:** search tools that allow users to search multiple variables at once and make it a snap to find local producers.
- **Training and member support:** new Step-by-Step Tutorial Videos are now available online 24-7, and a Help Desk staffed with live agents 8am-6pm weekdays, to help members take full advantage of FoodHub's cutting-edge technology to build their businesses.

- **Improved Knowledge Base:** FoodHub's online library of tools, resources and thought leadership on local food sourcing and supply chain challenges and solutions became available to the public.
- **Membership options:** to accommodate the needs of a wide range of users, three levels of membership are offered. "FastStart" membership provides a basic user profile and access to the Member Directory and Marketplace free of charge. For greater visibility and more features, members can upgrade to a monthly "Advantage" or annual "All-Access" account that allows them to enhance their member profiles and marketing strategies.
- **Marketing options:** creation of additional promotion opportunities for FoodHub members such as paid advertising, sponsored content, paid search placements, and weekly featured listings.

**Outreach and promotion**

Throughout the project period, the FoodHub team has worked to develop and continually improve our outreach and promotion efforts. These efforts include on-site presentations and training, online tools, video tutorials, phone support, participation in conferences and tradeshows, networking events such as Farm to Fork, individualized training in collaboration with Ecotrust's Farm to School program, direct mail, and strategic advertising and promotional placement. Outreach and promotion activities included the following:

- **Face-to-face outreach:** During the project period, the FoodHub team has conducted onsite presentations and trainings in settings urban and rural, small and large, for buyers and sellers, throughout Washington and Oregon.
- **Partner engagement:** We have consistently worked with partner organizations serving specialty crop producers and buyers to mobilize their members and stakeholders to participate in FoodHub. These diverse entities from the region's food and farming community include trade associations, distributors such as Food Services of America (FSA), farmers' markets, and government agencies.
- **Conferences and events:** The FoodHub team has attended a wide range of conferences, tradeshows, and related events to raise awareness of FoodHub as a tool for regional food system stakeholders from farmers and agricultural agencies to supermarkets, food banks and schools.
- **Online tools:** We have developed a strong set of online outreach tools that include e-newsletters, emailed Fresh Sheets, the FoodHub blog, and direct email contact with FoodHub users.
- **Social Media:** FoodHub maintains an active Facebook page (with 2046 followers), as well as a Twitter account (with 1379 followers).
- **Individual support:** The FoodHub Help Desk is staffed by core members of the FoodHub team Monday-Friday, 8 a.m.-6 p.m., accessible by phone at (503) 467-0816 or email at meet@food-hub.org.

- **Video tutorials:** We created a series of accessible, engaging videos to assist members in getting oriented and using FoodHub. Current videos include: "An Orientation to FoodHub", "Getting Started on FoodHub", and "Filling Out Your FoodHub Profile".
- **Incentive programs:** We have developed a number of incentive programs to encourage member referrals, membership upgrades, and paid promotional opportunities.
- **Direct Mail:** In order to address specifically identified issues in the public perception of FoodHub, we designed direct mail campaigns targeted to food buyers and specialty crop producers in the region.
- **Earned media:** Media interest in FoodHub has been strong from its incipient stages, and continues to be robust since the launch of Version 3.0 in July. Samples of media coverage have been submitted with Ecotrust's quarterly reports, and are also available at http://food-hub.org/pages/press.
- **Success stories:** FoodHub's most effective tool in outreach and promotion is the personal success stories of current users. We continually gather and document stories from FoodHub users about the connections made through the site, with a particular focus on capturing both sides of the story in the words of specialty crop producers and regional buyers. These stories and photographs are featured prominently on the site on both buyer and seller pages.

During the project period, an exciting opportunity arose which we did not anticipate, and which helped to raise the profile of FoodHub while underlining the importance of rural development, regional food systems, and specialty crops. In July, 2011, Deborah was invited to Washington to share her work on FoodHub in a roundtable discussion hosted by the recently-established White House Rural Council.

To increase our capacity in conducting effective marketing outreach, we invested in the customer relationship management tool, Salesforce, to be used for recruiting and managing FoodHub users. Key staff received intensive training in Salesforce, following which we worked to establish a basic system and field two successful Salesforce "test" campaigns. Salesforce will allow the FoodHub team to fine tune acquisition and engagement campaigns to maximize effective communication and marketing.

**Monitoring and Evaluation**

User feedback has been an integral part of the FoodHub development plan from the very first stages. Because FoodHub's success will be based upon its utility and responsiveness to user needs, we place particular emphasis on continuously improving the tool in direct response to user feedback gathered. Primary user evaluation channels include periodic formal user testing of features, focus group sessions with a range of users and stakeholders, site-based feedback mechanisms, and an annual member survey. In addition, the FoodHub team conducts weekly monitoring of site usage patterns and ongoing monitoring of site functionality.

User-testing groups and focus groups with specialty crop producers and buyers in general yielded helpful feedback regarding ways in which FoodHub could deepen relationships with specialty crop producers and buyers. The "feedback" button that prominently appears throughout the site, automatically creating an email to FoodHub administrators for on-the-spot user feedback, has been an invaluable source of user input. Apart from issues related to the features, FoodHub members consistently provide feedback related to the site's fruit and vegetable taxonomy, helping us update and improve the way in which information regarding specialty crops is presented on the site. The annual member survey provides an important means to evaluate FoodHub's effectiveness overall, and to gather feedback about its usefulness in growing the specialty crop market.

Weekly site monitoring allows us to identify usage patterns and trends and address engagement issues specifically through a variety of channels, provide key data used to develop outreach efforts and educational content. Where we observe that features are being underutilized, we create online "How To" tutorials, provide tips in e-newsletters, create phone support scripts, and develop training protocols for use during in-person member trainings.

Achieving self sufficiency for FoodHub is a long term goal. During the course of this granting period we took steps to ensure FoodHub's long term financial viability by modifying the business model and adopted a "freemium" model, removing the original $100 membership fee that created a barrier to entry for some specialty crop buyers and sellers, and added new fee-based features described above. This change represents the first step toward fine tuning FoodHub's business model so that over time the resource is self sufficient. In the future, we intend to build upon the successful model created in the Northwest and open FoodHub membership up to a national audience. This next step allows us to meet financial goals (drawing from a much larger potential customer base) as well as programmatic goals related to promoting specialty crops to the widest array of food buyers possible.

The overall goal of FoodHub is to provide an online directory and marketplace that makes it easy and efficient for buyers and sellers of regional food to find one another, share their stories and conduct business. In particular, FoodHub was designed to support the needs of specialty crop producers in Oregon and Washington, and enhance the market opportunities for these producers. During the project period, FoodHub has proven itself to be a powerful tool in supporting specialty crop markets within a thriving regional food system. FoodHub gathers food producers, professional food buyers, and the associations and suppliers that serve them both, in one dynamic marketplace and interactive directory.

As of this report, FoodHub boasts nearly 2,900 members, across four different membership categories. Buyer and seller members are balanced at 39% of overall membership, while associate members make up 19% of members and distributors make up 2%. But FoodHub's success can be measured in more than simply membership stats. This is readily apparent in the

stories we hear from FoodHub users. Thanks to FoodHub, Sound Food in Bainbridge Island, Washington helped a retailer on the island source USDA-certified local pork from *Flying Dog Farm* in nearby Grapeview. Because of FoodHub, *Our Family Farm* in Eugene, Oregon now supplies pastured chicken to the 350 families who do their food shopping through buying club *Know Thy Food* in Portland, Oregon. And the Wahluke School District in Mattawa, Washington connected to *Bella Terra Gardens* in Zillah to provide regular deliveries of tomatoes and cucumbers for the school's salad bar this year.

Connections such as these happen on a regular basis. And in addition to delivering immediate value to Oregon and Washington specialty crop producers, FoodHub received national acclaim throughout this grant period, with Fast Company magazine naming FoodHub one of the "Ten Most Innovative Food Companies" while Treehugger.com selected FoodHub as "Best Food Business Innovation". We Are Not Ants, a book and website (wearenotants.org) devoted to highlighting promising social innovations, included FoodHub in its online directory of projects "that suggest more intelligent ways of doing things". Most recently, Mother Nature Network included FoodHub in its Top 10 List of great tools for getting better food into schools.

We have made measurable and significant progress towards the four outcomes defined in our project proposal. Each of these four original outcomes are included below, along with an update detailing the present status of progress towards each.

- ***Outcome 1****: Provide specialty crop producers a simple way to provide general information about their business and market themselves, their stories, and their products (GOAL). No such tool currently exists (BENCHMARK). At least 700 OR and WA specialty crop producers will have FoodHub user records in Year 1 and at least 1,400 OR and WA specialty crop producers will have FoodHub user records in Year 2 (TARGET and PERFORMANCE MEASURE). In addition, 85% of specialty crop producers surveyed will report satisfaction with the tool (TARGET) as measured by an annual FoodHub user survey (PERFORMANCE MEASURE).*

**Update:** FoodHub has been recognized by specialty crop producers throughout Washington and Oregon as an effective, user-friendly way to provide general information about their business and to market their products within the region. Feedback on FoodHub has been overwhelmingly positive, with specialty crop producers and buyers confirming that FoodHub provides a vital service. In year one, 64% of those surveyed reported satisfaction with FoodHub as a tool (measured by members' willingness to recommend FoodHub to a friend). As of the November 2011 annual member satisfaction survey, 70% of those surveyed reported a willingness to recommend FoodHub to a friend.

While this is lower than the goal of 85%, it should be noted that "willingness to recommend" is not the same thing as satisfaction with the tool. Ultimately, we selected willingness to recommend as a key metric to measure over time because it represents both baseline satisfaction

with the tool *plus* a level of enthusiasm necessary to recommend the tool to another person. Thus, we're quite satisfied with knowing that 70% of those surveyed indicated a willingness to recommend FoodHub to a friend. We will continue to monitor user satisfaction through ongoing feedback, annual surveys, and other means, and we expect that user satisfaction will steadily increase given our dedication to improving the tool in response to member feedback. Both the first and second annual member surveys found that the feature set in FoodHub was relevant to specialty crop producers' needs, with more than 50% of members in both years indicating high levels of interest in the directory listings, search, message center, and marketplace features.

- ***Outcome 2****: Provide specialty crop buyers a simple way to provide general information about their business, access information about specialty crop producers, and order specialty crops based on specific requirements (e.g. certification, proximity, distribution model, and price) (GOAL). No such tool currently exists (BENCHMARK). At least 750 OR and WA food buyers will use FoodHub to buy from specialty crop producers in Year 1 and at least 1,500 OR and WA food buyers will use FoodHub to buy from specialty crop producers in Year 2 (TARGET) as measured by data tracked in FoodHub user records (PERFORMANCE MEASURE).*

**Update**: Like producers, specialty crop buyers in Washington and Oregon confirm that FoodHub is a simple, effective and convenient way to provide general information about their businesses, access information about specialty crop producers, and identify sources for specialty crops based on their specific requirements. As of this report, 1144 specialty crop buyers are conducting these activities via FoodHub. While this is lower than our target of 1,500 specialty crop buyers, we believe that FoodHub is poised to meet and exceed this target. Just in the 6 weeks since Ecotrust submitted our final quarterly report on October 28th, the number of specialty crop buyers registered on FoodHub has increased by 45 members.

- ***Outcome 3****: Create new market opportunities for specialty crop producers by increasing the number and types of food buyers purchasing their products (GOAL). At the end of Year 1, we estimate that a minimum of 35% of participating producers surveyed will indicate increased numbers and/or types of buyers with whom they are doing business (TARGET) as compared to levels prior to FoodHub participation (BENCHMARK). At the end of Year 2, we estimate that a minimum of 60% of participating producers surveyed will indicate increased numbers and/or types of buyers with whom they are doing business (TARGET) as compared to levels prior to FoodHub participation (BENCHMARK). Performance will be measured through producer self-reported data in FoodHub user record data fields and/or on annual surveys (PERFORMANCE MEASURE).*

**Update**: Both formal evaluation data and anecdotal information confirm that FoodHub is indeed an effective and highly usable tool for increasing the number and types of food buyers purchasing specialty crop producers' products. Throughout our quarterly reports, we have

included quotes from FoodHub members on both sides of the marketplace that demonstrate individual success stories. These featured cases are backed up by two years of quantitative data from the FoodHub annual member survey. As of this report:

- 60% of FoodHub producers report making 2-4 new connections via FoodHub, while 20% report making 5-9 new connections and 3% report making 10+ new connections.
- 20% of FoodHub specialty crop producers report making at least one sale to a FoodHub connection, with the dollar value of such sales ranging from $250 - $20,000.

Types of specialty crop buyers who are registered FoodHub members represent a wide range, including grocers, chefs, caterers, schools and school districts, universities and hospitals.

- ***Outcome 4****: Increase specialty crop producers' total volume of sales or dollar value of sales (GOAL). At the end of Year 2, we estimate that a minimum of 40% of participating producers surveyed will indicate increased volume of sales or dollar value of sales (TARGET) as compared to levels prior to FoodHub participation (BENCHMARK). Performance will be measured through producer self-reported data in FoodHub data fields and/or on annual surveys (PERFORMANCE MEASURE).*

**Update:** While FoodHub sellers, as noted above, reported making as many as 2-10+ new connections on FoodHub, we have less reliable data on the total dollar value of sales attributable to these connections because FoodHub does not track nor facilitate the actual transaction. Thus, to ascertain the degree to which FoodHub contributed to increased purchases of local product from the regional food economy, we ended up relying on self reported data from *buyers*.

- 47% of FoodHub buyers report increases in the variety of local foods purchased.
- 41% of FoodHub buyers surveyed report increases in the overall percentage of their food costs dedicated to local food.
- 50% of FoodHub buyers report making 2-4 new connections via FoodHub, while 12% report making 5-9 new connections and 2% report making 10+ new connections.

In survey results, individual buyers offer testimony to the wide variety of successful connections and business relationship established through FoodHub. One Oregon buyer found the tool so effective that it became part of the standard sourcing plan: "I am going to assign a member of my staff to by my 'Foodhubber' and give her a monthly budget that she can (and must) spend." Another buyer spoke to the tool's facilitation of working directly with producers to farm specific crops, to the benefit of both: "I joined Food Hub in February 2011 to meet local farmers that wanted to grow peppers. I have indeed met many, and have done business with 3, including my main supplier: Barbee Orchards/Bella Terra Gardens of Zillah Washington. We selected seed together back in February and were in communication all spring, summer, and fall as the plants grew and produced over 5000 lbs of peppers; of which I bought over 3000 lbs!" A third noted FoodHub's utility in finding regional sources for crops not available locally: "I just discovered FoodHub this spring and it was very useful for us finding cabbage from Washington before it

was ready in Thurston County." And another noted, "This is a great tool for new and old businesses to find great Oregon products."

**BENEFICIARIES**

Reviewing the project period, it is plain that specialty crop producers of all kinds in Washington and Oregon have benefited from the existence of FoodHub, as well as an immense range of specialty crop buyers. We have found FoodHub to be particularly relevant to school food services directors who are new entrants to farm to school programming, a movement which is gathering momentum throughout the region. Additionally FoodHub serves area distributors seeking to expand their local offerings. And finally, with the addition of the Associate membership, FoodHub has proven itself to be a valuable resource for farmers markets, commodity commissions, trade association, non-governmental organizations, universities, and others who support regional food trade in various ways. From our annual members survey, we heard from Associate members, "This site is a great networking resource for my services" and "I suggest to all my clients to become foodhub members."

Quantitative data is reported above, under outcomes.

**LESSONED LEARNED**

A key lesson from this project is that face to face interactions remain a critical component when launching a new resource or tool.

Members received weekly email communications and encouragements from FoodHub and there was notable traction throughout the region with the site routinely in the popular and trade press. In addition, FoodHub's site architecture is generally perceived to be user friendly and intuitive. Yet time and again we discovered that face-to-face trainings, or personal phone calls, were the most effective strategy for engaging members. There are so many distinct features within FoodHub that in-person trainings and demos, or one-on-one conversations, were the most effective means for educating members about how to maximize their use of and success with the tool. This presented challenges as FoodHub was attempting to cover two entire states with a very small staff. Thus, in addition to in person trainings we also created online video tutorials that could be more widely disseminated.

Similarly, face to face networking for members was equally effective in creating business connections. In the fall of 2011 we hosted a wholesale-only open air market for FoodHub members and found that the face to face interactions reinforced online connections that had been made on the site in a very positive way. Technology can support real human relationships, but it will never replace them. This was a theme we revisited over and over throughout the project period.

When FoodHub first launched we imagined it would be used specifically by food buyers and sellers to connect and conduct business related to food products. Over time, it became clear that the platform could support connections of many kinds and for many different types of members. In recognition of this, we reoriented the membership to include not just buyers and sellers, but also associate members such as farmers' market managers, university personnel, government agencies, advocate organizations, service providers, commodity commissions and the like. Similarly, we encouraged information sharing and points of connection that went well beyond food. For example, the site is now increasingly being used to coordinate logistics and transport opportunities with members posting information about routes they run, or space availability on refrigerated trucks. We're also very pleased to see the emergency food assistance community increasingly using FoodHub to solicit donations of fresh fruits and vegetables, an outcome we didn't foresee in the beginning.

FoodHub was not able to recruit the number of specialty crop buyers and sellers that we had originally projected. In hindsight, the original $100 membership fee was a barrier to entry that slowed widespread adoption. We've since addressed the issue by changing the business model to accommodate free memberships, but the perception that FoodHub costs money to join lingers. This early misstep is demonstrative of the healthy tension between delivering immediate results and taking steps toward self-sufficiency. It also represents an original lack of familiarity and expertise with successful internet business models. FoodHub is a classic example of a social venture enterprise; we were both mission driven and business oriented. For others attempting online efforts in the future, early inclusion of advisers familiar with successful tech-oriented business models and marketing approaches would likely be useful.

**TITLE: ODA-S14 The Oregon Nursery Certification Project – *Final Report (Approved 2/20/2013)***

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## PROJECT SUMMARY

Sustainability is an increasingly important consideration in production and marketing of nursery stock. Research by the Hartman Group in 2009 suggests that 88% of U.S. consumers make some percentage of household purchases based on sustainability concerns. Commercial and institutional buyers (including by leading retailers such as Walmart) are also showing increasing interest in sustainable products, with adoption of criteria for green building, green landscaping, and green procurement. In fact, the research firm Packaged Facts projects the market for products making ethical claims (*eco-friendly/green*) will grow from $38 billion in 2009 to $62 billion in 2014, with sales of non-food items growing at a faster pace than food.

The state of Oregon already has a reputation for environmental stewardship, and is known to be home to an innovative and progressive community of growers. Developing and promoting sustainability standards for Oregon nurseries will promote a positive image of the industry, leading to new market opportunities and competitive advantages. Offering a related certification program will enable growers to differentiate and add value to products with independently verified claims for social and environmental responsibility.

The Oregon Association of Nurseries (OAN) recruited Food Alliance and Salmon Safe as partners to implement this project, recognizing that a multi-stakeholder process, independent standards and an independent third-party audit program increase the credibility of any certification program.

In 2007, the National Agricultural Statistics Service estimated there were 2,100 Oregon nursery and greenhouse growers representing $988 million in sales. Approximately 80% of those sales were to out-of-state buyers. This project supported efforts by Oregon's nursery industry and by individual growers to expand sales and market share.

## PROJECT APPROACH

Develop Sustainability Standards for Field, Container and Greenhouse Operations

Food Alliance consulted a number of key stakeholders to seek input and information for the development of standards. The Oregon Association of Nurseries provided key contacts and research. Nursery operators that provided input and advice included: Monrovia, Woodburn Nursery, Carlton Plants, Bailey Nurseries, and A&R Spada Farms. Don Richards of Applied Horticultural Consulting was contracted to provide technical support in drafting standards and

criteria for sustainable nursery production. Our organizational partner Salmon Safe provided input particularly on water quality elements of the standards. Food Alliance certification director sought input from academic reviewers including**:

James Altland, Research Horticulturist, Application Technology Research Unit, USDA-ARS

Sam Doane, Production Horticulturist, J. Frank Schmidt and Son, Co.

Alan Elliott, Operations Manager, Carlton Plants, LLC.

Jonathan Frantz, Research Horticulturist, Application Technology Research Unit, USDA-ARS

Kate Knox, Salmon Safe

John Lea-Cox, Professor and University Research and Extension Specialist, Plant Science and Landscape Architecture, College of Agriculture and Natural Resources, University of Maryland

John Majsztrik, University of Maryland

Robin Rosetta, Associate Professor, North Willamette Research & Extension Center, Oregon State Univ.

Walter Suttle, Monrovia Nursery

Sarah White, Assistant Professor, Nursery Extension Specialist, School of Agricultural, Forest and Environmental Sciences, Clemson University

** Not all reviewer comments and suggestions were incorporated in the final draft of our evaluation criteria, so recognition of their contribution does not constitute an endorsement.

These reviewers offered significant expertise in sustainable nursery crop production, with backgrounds in plant pathology, control of weeds and invasive plants, entomology, nutrient management, protection of water quality, water recycling, and other concerns. Dr. Paul Jepson, Director of the Integrated Plant Protection Center at Oregon State University provided input on approaches to pest management in nursery operations. A second round of review of the certification standards by industry representatives and commercial customers included:

- Alan Elliot, Carlton Nursery
- Walter Suttle, Monrovia
- Sam Doane, J. Frank Schmidt Nursery

<u>Recruit and Train Nursery Inspectors</u>

Food Alliance has identified and trained two very qualified nursery inspectors to conduct our audits for certification. International Certification Services, an audit firm accredited for organic, FA and other certification programs advised on inspector recruitment and training. Oregon-based Lance Lyon shadowed a Food Alliance farm audit in the spring and received training from FA staff before conducting our first nursery audit at Native Grounds Nursery in early September.

Lance is a former nursery manager and IPM consultant with more than 30 years experience in the industry.

Ohio-based nursery consultant Jim Snyder is an experienced Veriflora inspector who has provided contract support marketing the new FA nursery standards. He led the Food Alliance mock inspection at NWREC and will be performing the upcoming audit at Monrovia nursery. Each inspector will also be able to provide technical support to nurseries preparing for inspection, while not conducting audits on those nurseries they have advised.

Outreach and Promotion

Prior to the launch of the standard, FA certification director met with Alan Scott, Principal of Green Building Services, Inc. and member of the US Green Building Council's LEED faculty to discuss the interest of the green building community in certified nursery products. Alan agreed that there would be interest in seeing certified nursery products written into LEED standards that address landscaping.

Food Alliance's business development director has met with representatives of EcoBiz to ensure the nursery certification program would be highlighted in their program targeting garden centers in the region.

FA's business development director and communications manager presented plans for development of a nursery certification program at the Oregon Association of Nurseries (OAN) marketing meeting in 2010. FA's certification director and business development director met with OAN staff and board regularly to discuss plans for promotion and rollout of the nursery certification program. FA did a "soft launch" of the certification program at the OAN membership conference in November 2011, hosting a hospitality suite and securing placement on the convention agenda to present the standards.

Pat Steeb of Cumulus Design was hired to create the certification seal to be used by nurseries.

The "hard launch" of the new program unfolded in 2012. It was supported by a landing page on the FA website www.foodalliance.org/nursery devoted to the nursery and greenhouse production standard. This page includes the following information:

- link to standard and evaluation tools
- description of certification program and link to application
- link to Frequently Asked Questions
- promotional offer extended to 2012 applicants
- fee schedule
- informational 2-pager
- certification seal

FA business development director worked with marketing consultant Jim Snyder and communications/PR consultant Annie Gardiner to publicize the new standard and certification program in spring and summer 2012. This work resulted in the following media attention:

1. Press Release - *First Certification*: Oregon Nursery Recognized for Sustainability Practices
2. New Suite of Sustainability Tools (Greenhouse Producer News) August 2012
3. The Short Guide to MPS, Veriflora & Food Alliance Labels (Grower Talks) 26 July 2012
4. New Sustainability Tools for Growers Debut (Greenhouse Product News) 3 June 2012
5. New sustainability tools help greenhouse producers earn certification (Sustainable Food News) 1 June 2012
6. Food Alliance launches sustainable nursery certification (Sustainable Business Oregon) 30 May 2012
7. Food Alliance branches into nurseries (Capital Press) 24 May 2012
8. Food Alliance launches three tools for greenhouse producers (Greenhouse Management) 17 May 2012
9. Food Alliance launches three tools for nursery producers (Nursery Management) 17 May 2012
10. Loads about sustainability standards; plus a new one (Green Talks) May 2012

Throughout the launch, OAN has been supportive in promoting the new sustainability standard, evaluation tools and certification program in multiple newsletters, Digger articles, printed promotional materials and at events.

FA business development director exhibited at the OAN Open House in June 2012.
Food Alliance business development director exhibited at the Far West 2012 show as a featured part of the OAN resource center.

Field Day
On September 18, 2012 Food Alliance and Oregon State University conducted a sustainability workshop for nursery and greenhouse growers at the North Willamette Research and Extension Center (NWREC) in Aurora, Oregon. Workshop participants gained a clear understanding of FA sustainability evaluation tools, certification requirements and how performance is assessed in an inspection process. The workshop included a mock inspection and participants walked

NWREC's operation with OSU professor Robin Rosetta and Food Alliance inspector Jim Snyder, as they explained the evaluation tools and key points of the certification inspection process.

Audit

In May 2012 the first audit was conducted at Native Grounds Nursery in Brownsville, Oregon. Following the audit, FA awarded certification to the first nursery and greenhouse operation in North America to be Food Alliance certified for socially and environmentally responsible management practices.

To achieve certification Native Grounds Nursery underwent an independent on-site inspection to determine if the operation meets the stringent certification requirements that comprise the FA Sustainability Standard. According to the inspection results, Native Grounds Nursery scores exceptionally high in the areas of water conservation, wildlife habitat preservation, and biodiversity conservation.

A second audit is scheduled at Monrovia nursery this fall.

**GOALS AND OUTCOMES ACHIEVED**

Project activities are detailed above. Finalization of the standards took longer than expected, due in part to the necessity of coordinating with many partners who were providing input to design the standards.

*Goals of Project (projected v. actual)*

*Outcomes of this project will include publication of academic and industry reviewed standards for sustainable nursery management in Oregon, and creation of an independent third-party audit program to certify sustainable nursery operations. No such standards or program currently exists.* **Achieved.**

*This project will reach at least half of Oregon's nursery growers through OAN member communications and other agriculture and trade publications. These growers will receive information on reducing costs and risks through adoption of sustainable practices, and on opportunities and strategies for realizing related market benefits from sustainability. An estimated 50 growers will receive additional information and training through a planned educational field day.* **We have largely achieved our outreach goals. FA did an initial launch of the standards at the OAN annual member meeting last winter, were part of an OAN open house in June, were featured as part of the OAN resource center at the FarWest show, and have been featured in the OAN newsletter numerous times. The field day group was limited to 20 workshop participants; a third were producers and the rest were industry advisors. We expect that certification of Monrovia later this fall will garner significant**

**attention in Oregon's nursery industry and raise the profile of the new sustainability standards.**

*As a result of promotion within the industry, at least 200 nursery growers will download copies of the certification standards and evaluation criteria from the project website during the 2-year start-up period. This represents approximately 10% of the industry.*
**We are delayed achieving this goal because finalization of the sustainability standard took longer than anticipated, but we anticipate reaching it in the coming year. Even though we have just formally launched the new standards, we have tracked 39 evaluation tool downloads to date, half by producers, the other half by industry advisors.**

*At least 20 Oregon nursery operations representing at least 650 acres of production will be certified under the new standards during the 2-year start-up period. This represents approximately 2% of the industry.*
*Inspectors will document the implementation of sustainable practices and establish baseline performance scores for each operation for soil and water conservation, pest management, nutrient management, wildlife habitat management and other concerns. This will provide information to growers that can be used for management and marketing purposes, and allow assessment of improved performance over time.*
**Due to the delays finalizing the standards, our timeline for achieving these long-term goals has been pushed out, but they remain intact.**

## BENEFICIARIES

In 2010, the Oregon Agricultural Statistic Service estimated there were 1,800 nursery and greenhouse operations in Oregon, representing $676 million in sales, 20,600 full- and part-time employees, and 54,000 acres in production. While we were delayed finalizing the standard, we anticipate that this project will provide market benefits from sustainability to participating growers, including: positive customer feedback, increased customer loyalty, increased sales, new market opportunities, increased market share, and ability to leverage price premiums.

All Oregonians will benefit from the promotion and adoption of more sustainable practices in Oregon's nurseries.

## LESSONS LEARNED

This project represents the latest extension of Food Alliance core certification program to include a new sector of agriculture. Last year we launched shellfish certification and before that we added poultry to our livestock offerings. These 'extensions' start with the development of certification standards and criteria—and the many technical elements, expertise and coordination that process involves. With each successive extension, we've learned more vividly how important the success of the project depends on early, strategic communication with opinion leaders and gatekeepers in the relevant industry—the earlier the better. This requires ongoing

communication with appropriate tools, like website landing pages, fact sheets, etc. We were fortunate to have early and consistent support and input from the Oregon Association of Nurseries for this project. Internal review of the draft nursery standards took longer than anticipated. These are new cropping systems for Food Alliance staff, so much time was taken working with the consultants to clarify issues of concern and measures for performance contained in the draft materials.

Because the nursery industry's fortunes are linked closely with housing and other construction, the broader economic downturn has impacted the nursery industry severely. Gross nursery sales in Oregon were $676 million in 2010, down from $988 million in 2007. As a result, nurseries have been more reluctant to invest time and resources in a new marketing approach whose benefit to their business is longer-term. Though we did not anticipate this when we launched the project, it has contributed to slowing in the uptake of the new certification program.

With this project we learned the value of engaging industry experts for support with sales, marketing and communication strategy - not just for standard and criteria development, as we have done in the past. This contributed to the significant press coverage we have been able to generate. We also have learned the value of developing and promoting a sustainability evaluation tool that anyone can access and use for free. Offering more than certification standards encourages wider use of the tools and creates pathway for more nursery businesses to engage FA for voluntary certification services.

**TITLE: ODA-S15 Grower's Seek to Directly Foster Retail Interest in Organic Specialty Potatoes – *Final Report (Approved 2/20/2013)***

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**PROJECT SUMMARY**

Klamath Basin Fresh Direct, LLC (KBFD) is a collaborative partnership among family owned farms and packing sheds in Oregon's Klamath Basin. When we began this project in 2010 KBFD had 42 grower member/owners, who collectively produced about 70% of the Basin's fresh market potatoes.

KBFD was formed with the singular purposes of developing new potato markets and products. Our principal goal is to increase grower profits and sustainability by developing product lines and markets, which are less susceptible to the normally large price fluctuations of traditional potato commodities.

Our first project was the development and introduction of "Organic Klamath Pearl" potatoes. This small white specialty potato was developed to appeal to chefs and to an emerging class of consumers who are interested in easily prepared home cooked meals but also value a home gourmet experience. To enhance our appeal to this consumer base we elected to only produce Pearls organically and to market in single meal 2 lb packages of uniformly sized small potatoes. We introduced this product to the market by forming a working partnership with a national wholesale distributer of specialty produce. This partnership resulted in a very successful product introduction, with test market sales through out the country. These early sales of Klamath Pearls produced excellent returns for our participating growers. However, after a period of expanding production and steadily rising sales, demand plateaued and our increased production became more difficult to sell. This period of flat sales coincided with our current national economic downturn.

As growers of organic specialty potatoes, we seek to increase sales by foraging "direct business" relationships with national and west coast retail outlets and major restaurant chains. Our marketing plan involved personally meeting with buyers who have had experience with our product and to introduce our products to buyers who have not tried our specialty potatoes. Our growers applied for this Specialty Crop Grant to help with funding to hire a product/sales manager to work directly with these buyers, particularly looking for partnership opportunities which might include promotions, in store demonstrations, private label packaging and joint marketing.

As growers, we were at a critical point in 2010 and needed to formulate a plan as to how to enhance the marketing of our product/s. We have specialty varieties that are well received by consumers, but we have not penetrated sufficient retail outlets to warrant expansion of our grower base or acreage. We believed, with Oregon Department of Agriculture (ODA) assistance, and this marketing proposal, we would be able to add retail outlets, allowing for the expansion of the Klamath Basin's organic specialty potato production.

**PROJECT APPROACH**

Upon receiving the grant in 2010 KBFD owners went through a competitive interview process and hired a Project Manager (PM) to aid in the marketing of KBFD specialty organic potatoes. Goals for the first year were to create a new brand identity and successfully present it to our customers, create a sales kit, gain new customers and continue to build relationships with existing customers, increase awareness of our brand in-stores, redo the website and begin marketing through avenues such as social media and affordable advertising outlets.

The PM immediately began work on creating a new brand identity for KBFD, which included creating a logo and designing new packaging and boxes for the KBFD fingerling product line. It was decided by KBFD members to design packaging for five organic fingerling varieties and two medley packs for a total of seven products. The PM worked with a designer and the KBFD group to design a KBFD logo and create a new product line to present our new brand identity to start off the season in the fall of 2010.

The PM put together a Sales Kit which included sales brochures, POS material for retail stores, and did a complete revamp of the website to include updated information about KBFD, our products, recipes, and photos from the farm giving our customers a comprehensive look into our cooperative and the quality potatoes we grow. The PM did a video project with a local reputable chef, which focused on the Klamath Pearl variety. The PM worked alongside the chef to create five short cooking segments featuring unique recipes using the Klamath Pearl.

The PM and KBFD growers were aggressive in presenting our new brand identity by networking, making new contacts and getting meetings with prospective customers lined up to make sales presentations, and also worked on maintaining relationships with current customers to enhance the presence of our brand in-stores and to increase sales of KBFD potatoes. Marketing efforts to introduce our new brand identity included attending and having booths at relevant produce marketing conferences, travelling domestically to meet with current and prospective customers, invested in online and paper publication advertising, building a press release list and sending out press releases, working with our distributors and retail customers to set up promotions, and organizing in-store demos to educate the consumer directly about our brand.

KBFD was quite aggressive in organizing in-store demos. Over the course of the first year the PM did a total of 40 in-store demos in the Portland area and though the retailers were not able to give us direct feedback in regards to the demos, overall potato sales did increase each month from November 2009 to April 2010.

Though we did see an increase in sales after introducing the new brand identity, we received some negative feedback in regards to our new packaging. The PM ended the shipping season in the spring of 2011 by conducting consumer surveys and a consumer panel in the Portland area. The primary goal behind the consumer surveys was to get feedback directly from the consumer to help influence our decision on what we could do to further improve our packaging. KBFD members and the PM had decided on using a #1.5 green-guard bag which is a light-resistant plastic material on the front of the bag with a mesh back so you can see the product when it is turned over. We found that consumers wanted to see the product from the front of the bag and that the bag was a little too busy on the front. Though KBFD growers were not willing to invest in redesigning another package for the 2011-2012 but decided that we would make improvements to the packaging by 2013.

Over the course of the second year the PM continued to improve the marketing strategies and presentation of KBFD to the public. The PM works closely with the website designer to keep the website continually refreshed and updated with new products, recipes, and photos from the farm. The PM worked with a videographer who does a local TV program called Living Culture to put together a promotional video featuring KBFD. We use this now as a marketing tool as it tells the story of our farmers, our community, and gives a fantastic overview of what goes into growing organic potatoes. The PM hired a woman to help aid in demos over the second year so we could increase the number of demos and cover more chains than just local Portland markets. The PM and the hired demo employee did demos in Northern California and Seattle areas as well as the greater Portland area throughout the second shipping season of the grant and had success in sales the week of the demos but more importantly were able to increase the number of varieties sold so that each store is now carrying the whole product line versus just three or four varieties. The PM as well as KBFD members continue to enhance our relationships with new and old customers.

After shipping season ended in the spring of 2012 the KBFD members decided to start work on redesigning the logo and product line and made the decision to change the name to Klamath Basin Fresh Organics (KBFO). KBFD members have chosen to focus on targeting the organic consumer, hence adding the word “Organics” to the cooperative title. The PM and members of KBFD decided to hire a professional design firm to work with on re-designing the new logo for KBFO. We went through a competitive application and interview process in hiring the design firm. The PM and members of KBFO have begun work with the design firm, have created a new logo for KBFO, have decided to add three additional organic potato varieties to be marketed under the KBFO name, and since August of 2012 have been working on the package and box

redesign for all of our products. By 2013 KBFO will have a total of nine potato varieties and 14 packaged products to be marketed under the KBFO umbrella.

**GOALS AND OUTCOMES ACHIEVED**

The goals when writing the grant were as follows:

1. to introduce new specialty potatoes into national and international markets
2. to increase retail sales of organic specialty potatoes
3. to develop personal relationships with retail produce buyers
4. to build partnerships/alliances with retail groceries
5. to develop "locally grown" outlets in food service, retail, and farmers markets
6. to increase consumer awareness of the health and nutritional benefits of specialty potatoes

Collaborative effort between the PM, KBFD members, and our brokers lent to accomplishing all of the goals set forth for the two year grant period. KBFD was able to increase acres of organic potatoes grown from 500 acres in 2010 to 900 acres in 2011 to 1400 acres in 2014. KBFD increased sales in each year of the grant period. In 2010 sales increased by 80%, in 2011 by 75%, and in 2012 sales increased by 60%. The increased acreage and increased sales were a result of the marketing efforts put forth by the PM and the KBFD members.

The activities set forth by the PM and KBFD to build our brand identity and our aggressive efforts to build and maintain relationships with our customers were the primary causes contributing to our success. We increased sales with our current customers and gained new customers by aggressively networking and supporting our efforts with demos and advertising dollars. We acquired new accounts with Whole Foods, Earthbound Farms, Central Markets/HEB, Schnucks, and Publix, and increased business largely through these avenues and with a couple of new distributors as well.

**BENEFICIARIES**

The members of KBFD benefited largely from the marketing efforts set forth by the PM and themselves. As mentioned previously we were able to increase organic potato acreage by 900 acres grown over two years which led to an increase in sales for KBFD. With our new brand identity and aggressive efforts to reach the consumer directly via demos and advertising the Klamath Basin gained large recognition as being a quality producer of specialty organic potatoes. Numerous businesses in the Klamath Basin, including local seed growers, fertilizer companies, farm equipment suppliers, and a handful of other local businesses are positively impacted by any increase in acreage planted as the Klamath Basin depends highly on its farmers as the majority of businesses in the Klamath Basin are suppliers of farmers' needs.

The organic market as a whole, including our brokers, distributors, and retail customers gained more business as a result of our successful marketing efforts. By supplying a quality product and backing it up with supported grower marketing is a recipe for success and it was because of this

grant that KBFD was able to build its brand and help increase sales and recognition of Oregon-grown specialty organic potatoes.

**LESSONS LEARNED**

KBFD members and the PM learned a lot about brand development through this process of creating a logo, designing new packaging, and utilizing various marketing tactics to present our brand to the public and gain positive recognition. The most challenging part was choosing the type of bag to use for packaging and then to create a desirable to package that would be attractive to the consumer. Our design was not perfect and it created some confusion with the consumer because of the actual design. By doing in-store demos and talking directly with consumers, doing actual consumer surveys, conducting a consumer panel, and having meetings with our distributors, we got feedback on how we could improve packaging and will be redesigning our package to better fulfill the attractive qualities consumers want to see. Though we decided to hold off for a year on designing a new package, the KBFD group has put a lot of thought and effort into improving our brand and conveying an even clearer message to the organic consumer that we are passionate about organic produce and bringing them a quality product. By making the decision to change our cooperative name to include the work "organic" and to create a new package that better portrays the desirable qualities the consumer wants we hope to grow our business even more and create a sustainable future for KBFD and its future farmers.

In the beginning of this project KBFD members had the intention of focusing the promotion of one variety, the Klamath Pearl, because we wanted to bring recognition to our community and also because this potato has some very unique qualities that we believed it could become our top seller. As we began brainstorming about ideas and how to focus on this particular variety we quickly realized that we needed to include the other varieties in our marketing efforts as it is easier to promote a brand name with a whole product line versus promoting a single entity in an entire product line. We still focused efforts on marketing the Pearl in demos, etc. and found that in the stores where demos were carried out we had generated an increased interest in the variety resulting in higher sales of Klamath Pearls, though the increase was not too significant and we were still seeing positive sales of the other varieties. Because of the success of promoting the product line KBFD has decided to include four additional varieties to be marketed under the KBFD name in 2012-2013.

**TITLE: ODA-S16 Idaho – Oregon Bi-State Food Processors Specialty Crop Sustainability Initiative – *Final Report (Approved – 02/07/2014)***

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## PROJECT SUMMARY

Many specialty crop producers and processors are not prepared to meet their key customers' sustainability criteria. For the specialty crop industry, meeting these requirements are vital its continued growth and survival. The Idaho- Oregon Bi-State Food Processors Specialty Crop Sustainability Initiative is an industry-driven sustainability support structure to help specialty crop producers and processors design and implement company-specific sustainability plans. The initiative provides companies written materials and online resources needed to create company-specific sustainability plans. The project enables the development of sustainability tools that companies are unlikely to develop on their own. This was a multi-state project between Oregon Department of Agriculture (ODA) and Idaho Department of Agriculture (IDA). The ODA was the lead state for this project. This multi-state specialty crop grant project has not been funded by other federal or state programs.

## PROJECT APPROACH, GOALS AND OUTCOMES

**Sustainability Committee:**

Project Approach: The vision was to create a Sustainability Task Force that would conduct research with Idaho and Oregon focused surveys. The task force will also develop actions plans with metrics, curricula and educational plans.

Goals and Outcomes Achieved: The goal of the task force was to create a sustainability framework for the Northwest food processing industry. It was instrumental in the planning of both the 2011 and 2012 Sustainability Summits. Members provided input in the creation Sustainability Readiness Questionnaire and the Sustainability Readiness and Insight Assessment. The Sustainability Task Force was formalized into a committee at the 2012 NWFPA Executive Business Summit (EBS) in May 17, 2012. Membership increased from 9 Sustainability Task Force members to 11 Sustainability Committee members from Oregon, Washington, and Idaho food processing companies. In addition to providing input for the Sustainability Guide, Sustainability Readiness Questionnaire and Assessment, the Micro-Case Studies project, and the Go-Green Transportation Project, the committee has continued its involvement in planning the 2013 Sustainability Summit.

**Sustainability Summit**:

Project Approach: The concept of the NWFPA Sustainability Summit is to bring the food processing industry together in one location and generate a dialogue focused on environmental, economical and social sustainability. It is a peer-to-peer learning opportunity.

Goals and Outcomes Achieved: NWFPA has successfully held 2 Sustainability Summits bringing together representatives from the food processing industry, food processing suppliers, and other interested parties. The first summit had 90 people in attendance and the second summit had 87 attendees. What made the second Sustainability Summit different than the first was the opportunity for suppliers to share with the industry their company's efforts to become more sustainable while offering solutions. Presentations from industry and supplier representatives were well received due to their educational content. At the 2012 Sustainability, Bill Graham, a professional communications expert, conducted a training session for 50 participants in " How to Communicate your Sustainability Efforts". The Sustainability Summit has become a yearly knowledge exchange event focused on economic, environmental, and social sustainability. The summit is revenue generating, making it financially self-sustaining beyond the grant. Planning for the 2013 Sustainability Summit is on track for April 17, 2013.

**Readiness Questionnaire and the Sustainability Readiness and Insight Assessment**:

Project Approach: In collaboration with DM Strategies, NWFPA completed two electronic assessment tools that food processors can utilize to evaluate themselves on their environmental, economic, and social sustainability efforts. Both the questionaire and assessments were designed to help guide companies with their strategic planning in setting their sustainability goals and executing them yearly.

Goals and Outcomes Achieved: The goal of both the questionnaire and assessments was to create a self-evaluation resource for food processing companies. In terms of usage, the Readiness Questionnaire has been more widely adopted than the Sustainability Readiness Questionnaire. Due to its intensive and fee-based nature, the assessment was not as widely accessed.

At both the 2011 and 2012 Sustainability Summit, Readiness Questionnaire was conducted to gain feedback from attendees. The responses from both years, shown below, highlight opportunities for industry development and illustrate the stark disparity between the widely acknowledged need and strong commitment to pursue sustainability, and the lack current training resources available. The results clarified the direction for NWFPA's future training material development, having a direct impact on enhancing the Sustainability Guide, developing three industrial water resource training workshops, and creating the Sustainability Micro-case Studies.

| 2011 Sustainability Summit Sustainability Readiness Questionnaire Results | 2012 Sustainability Summit Sustainability Readiness Questionnaire Results |
|---|---|
| **Among companies represented at the Summit:**<br>89% have a leadership commitment for sustainability<br>73% have policies that demonstrate commitment to sustainability<br>60% either have a sustainability leader and /or steering team<br>**Yet only:**<br>43% have a sustainability action plan<br>32% have identified objectives with a timeline<br>9% have available sustainability training | **Among companies represented at the Summit:**<br>88% have a leadership commitment for sustainability<br>82% have policies that demonstrate commitment to sustainability<br>88% either have a sustainability leader and /or steering team<br>**Yet only:**<br>35% have a sustainability action plan<br>41% have identified objectives with a timeline<br>31% have available sustainability training |

**Sustainability Guide:**

Project Approach: The purpose of the Sustainability Guide is develop a tool, available in print and electronic format, that would help food processors initiate their sustainability projects, set goals, and assist in the development of metrics and reporting standards.

Goals and Outcomes Achieved: NWFPA accomplished its goal of creating one guide. Two versions, the original and updated version, of the Sustainability Guide was developed and distributed. The first version was initially distributed at the 2011 Sustainability Summit. It was so well received as a resource that 2 food processing companies paid for 50 copies each. With the help of a contractor, the guide was redesigned and updated with more current and relevant content. Over 300 copies of the second version were distributed at the 2013 NW Food Manufacturing & Packaging Expo.

**Go-Green Shipper Transportation:**

Project Approach: The Go-Green Shipper Transportation project is a pilot program that uses a web-based tool to create better processing and routing efficiencies. The project's aim was to demonstrate best practices for operational efficiencies, freight cost reductions, fuel savings, and CO2 emission reduction using this tool.

Goals and Outcomes Achieved: NWFPA identified a pilot plant and began shipments with a major Idaho Food Processor, using web based software to expand their freight network beyond their current base. The results illustrated that the concept works. With the addition of intermodal, the environmental impact is sizable and the project has resulted in a 69.86% reduction in greenhouse gas emissions and consumption of diesel in those loads. NWFPA can develop outreach through its training center.

**Sustainability Micro-case Studies:**

Project Approach: An outcome of the Sustainability Readiness Questionnaire was the development of the Sustainability Micro-Case Studies project. A contractor was hired to research and develop a 6"x9" book that benchmarks industry practices. The book is created to inspire and encourage other companies to either adopt similar practices or initiate their own.

Goals and Outcomes Achieved: The goal was to compile 50 case studies and to update the studies yearly to continue beyond this grant. The project is on track and to date NWFPA has 59 case studies. In addition to the 6"x9" book, a downloadable version will be available online in the Sustainability website once the final edits are complete in spring 2013.

**Industrial Water Use Training Course:**

Project Approach: With the support and input of the Sustainability Committee, contract with Gannett Fleming & Cascade Earth Sciences was created to develop three "Industrial Water Use" training courses. The first course focuses on watershed and water balance. The second course is focused on water economics, risks, and quality. The third course is focused on water and energy management opportunities.

Goals and Outcomes Achieved: The goal was to create a sustainability training workshop involving 15 companies in ID and OR. NWFPA accomplished that goal by conducting the training course twice. The first workshop included 20 participants at NWFPA Assembly of Committees in September 2012. A second training course was conducted with 45 participants in the January 2013 Expo in Portland, Oregon.

**EXPO Activities:**

Project Approach: Sustainability-focused sessions were held at both 2011 and 2012 NW Food Manufacturing & Packaging Expo.

Goals and Outcomes Achieved: The goal was to publicly launch the sustainability initiative focus at NWFPA Expo with education and training involving at least 200 ID and OR

participants. The 2011 launch was accomplished as planned with three program sessions: "Sustainable Transportation - Is it Worth the Cost?", "Green Packaging: Shifting Markets, New Opportunities", and "Lean to Green: A Process for Sustainability", all primarily focused on the specialty crop industries. A total of 66 people attended the sessions. In addition, a focus group session of 20 people was conducted to review the Sustainability Guide draft and Assessment Tool. Besides the Green Transportation workshop, "Shipper, Customer, 3PL Supply Chain Demands" was held, a session focused on logistics partners and issues in cost control. EXPO 2012 continued these efforts with a sessions on "Communicating your Sustainability Efforts", "Sustainability Measurement and Reporting", and "Energy Data Management" sessions with 81 total attendees.

**BENEFICIARIES**

The beneficiaries of the Idaho- Oregon Bi-State Food Processors Specialty Crop Sustainability Initiative are the specialty crop producers and processors in Idaho and Oregon who have participated in or received a product funded by this grant.

These beneficiaries include but are not limited to those who:

received and use the Sustainability Guide

utilized either the Sustainability Readiness Assessment or Questionnaire

participated in the Go-Green Shipper Transportation project

are a member of the Sustainability Committee or attended one its meetings

attended any of the Sustainability-focused events:

2010 and/or 2012Sustainability Summit

Industrial Water Use Training Workshops

Sustainability-focused sessions at the 2011 or 2012 NWFPA Expo

"Communicating your Sustainability Efforts" Training Session (Expo 2012, Executive Business Summit 2012, Sustainability Summit 2012)

will read the Micro-case Studies

**LESSONS LEARNED**

There were various lessons learned by the NWFPA staff and contractors as a result of completing this project.

In-depth sustainability assessments are not easily adopted. In order have greater impact, finding a way that makes the assessments easier to use will be instrumental.

It is important to listen to the industry's needs via surveys prior to submitting project proposals. For example, NWFPA discovered that obtaining training resources are more important to the industry than funding transportation projects.

Challenges with the Go-Green Transportation Project: Resistance to change-Any change to the established patterns in work will be resisted. When any change is proposed, affected employees feel their job is being threatened or that the quality of work is being questioned. Instant defenses can range from unwillingness to share information to a determined effort to make the changes fail. Though the changes may benefit the Company, the employee may believe that they will not benefit, may have their status within the organization affected, or may even be harmed in

some fashion. This is typically caused by poor communication with employees involved about the benefits of the change. We need the help of upper management to help demonstrate why the changes are important.

**TITLE: ODA-S17 Defining the Web-Based Tool that Connects Plant Buyers and Growers – *Final Report (APPROVED 1/30/12)***

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**PROJECT SUMMARY**

*Purpose*

Increasingly, commercial buyers of plant material seek online resources for locating information about and sources of plant material. However, no single, widely recognized Web site offers buyers the ability to search for plant material by name, characteristics, attributes or function, viability in various USDA zones, or by visual representation through a photographic library linked to a comprehensive directory of growers, brokers and rewholesalers who can provide the plants.

The OAN currently maintains and promotes the most comprehensive print and Web-based plant buyers guide in the industry, both of which are highly valued by OAN members. The information is organized into general categories (e.g., Shade & Flowering Trees, Conifers) and by form of production (e.g., bare root, container), offering quantity in production and basic grower contact information. The 2010 *OAN Buyers Guide* contained 6,064 different plant and product categories, and 36,000 listings by 631 different companies. Traffic on NurseryGuide.com peaks March through May at more than 5,000 visits; average time on the site exceeds five minutes. (Traffic in 2010 is exceeding 2009 levels by 10 percent on average.) Both the *OAN Buyers Guide* and NurseryGuide.com are fully funded by the OAN. No other grant sources were sought for defining and expanding the functionality of the online buyer's guide.

NurseryGuide.com, the OAN's current online buyer's guide, was built more than a decade ago. It lacks plant descriptions and a photo library, and doesn't allow buyers to search for plants based on characteristics or function, such as bloom color or period, seasonal color, shade tolerance moisture requirements, etc. Its functionality (and technology platform) limits the OAN's ability to offer compelling reasons for increasingly Internet savvy users to regularly visit the site or take advantage of advancements in Web-based capabilities.

As traditional industry marketing and sales methods become less effective, the inability of plant buyers to search for plants by function, characteristics, and photos, and to identify suppliers of the located plants, represents a serious challenge for many nursery, greenhouse and Christmas tree growers, many of whom lack an Internet presence. Developing a comprehensive, searchable database of plants, organized using proper nomenclature, characteristics, function and linked to plant descriptions and photographs, is both technically complex and costly*; however, the

OAN's experience with NurseryGuide.com provides an excellent foundation for the addition of such information desired by commercial plant buyers.

Building, implementing and marketing a comprehensive online plant database is a several year project. Understanding today's information needs will identify the information of greatest value to buyers resulting in an informed, phased implementation plan focused on the highest priorities and ensuring online tool will be relevant well into the future.

*Early estimates indicated that such a site would cost $300,000 to develop and $25,000 annually to maintain.

*Motivation & Impact*
The OAN believes that Internet resources increasingly will be utilized to make plant purchase decisions. What we don't know—and these grant funds will help us discover—is the type of information that will be highly valued by plant buyers, how that information should be delivered to provide informed choices, and how to deliver the information to attract and engage the buyer for repeat usage of the site.

The Internet environment is rapidly changing. The Project provides information to develop parameters and engagement strategies for an online buyers tool that will be an asset for plants sellers—growers located in Oregon, the northwest and nationally—and North American buyers alike.

This grant application requested funds to embark on research that will provide the OAN, its more than 1,100 members and the $10 billion national nursery industry with information about how the internet currently is used by industry buyers and is projected to be used to research and purchase plant material. Research results will influence how the OAN designs the next phase of the project: the next generation online plant database. It also has the potential to influence how nurseries nationally allocate Web-based and social networking resources for their company Web sites, sales force and customer base.

Seventy-five percent of what is grown in Oregon is sold outside the state. Competition from other growing states in the east with closer proximity to population centers is increasing. Therefore, providing buyers across the country with a convenient, comprehensive, accessible tool to research plants and connect buyers and sellers will go a long way to keeping Oregon's nursery industry, the state's largest agricultural sector, and its more than 2,000 growers competitive and at the forefront of the industry nationally.

Developing a more robust online plant buyers guide has the potential to provide:

- An effective online presence for member growers unable to support a Web site;
- A convenient, comprehensive resource for plant buyers and specifiers;

- Enhanced information about plants and who's growing them to facilitate the establishment of buying relationships; and
- A future revenue source for the OAN.

**PROJECT APPROACH**

*Activities & Tasks Performed*

Two RFPs were prepared, one each for the research and technical assessment/business plan phases of the project. The research RFP was sent to Bell & Funk, Everbearing Systems, Market Shift Strategies, OakTree Digital/Mackenzie Marketing Group, and Pivot Group, all Oregon-based companies. After evaluating the time line for the project, Market Shift Strategies declined to respond to the RFP. Ann Murphy had several meetings and/or phone conversations with the companies to clarify project scope and answer questions about the RFP, after which Murphy and Elizabeth Peters evaluated the responses. Pivot Group was selected based on their market research capabilities and the valued-added elements within their proposal.

Everbearing Systems, OakTree Digital/Happy Inc., and Pivot Group responded to the Technical Assessment/Business Plan RFP. After phone conversations with the companies to clarify project scope and answer questions about the RFP and presentations by each company to Ann Murphy, Elizabeth Peters, Jeff Stone and Beth Farmer, OakTree Digital/Happy Inc. were selected in large measure due to OakTree's sole focus on the technological side of businesses. We were impressed with the overall presentation and Happy Inc.'s development of creative Web interfaces for a diverse mix of industries.

Pivot Group conducted a pre-focus group study of the industry to help refine the focus group moderator's guide. Two focus groups were conducted on January 7 in Baltimore to take advantage of the gathering of industry people at the Mid-Atlantic Nursery Trade Show. Another two focus groups were conducted in the Seattle area on January 13 and 14. The information gathered in the focus groups helped frame the telephone survey questions, which took place in February. The focus groups included industry members from distinct market channels: garden centers, landscape contractors and designers, and wholesale growers and other rewholesalers. The facilitated focus group discussion meetings involved 8-10 different industry members at each discussion meeting.

Additional data and insight into marketplace expectations was gained from a telephone survey consisting of 300 interviews and 30 questions per interview. The OAN used the telephone survey to test and substantiate the findings and conclusions regarding industry attitudes and perceptions developed from the focus group discussions. The telephone survey targeted the same market channels represented in the focus group discussions.

Research results were presented on March 25 to OAN staff (Jeff Stone, Elizabeth Peters, Curt Kipp, and Ann Murphy), OAN President Kristin Van Hoose, OAN Marketing Committee

members Brian Taylor and Jenni Burkhead, and happy inc. and Oaktree Digital. Research Objectives were:

1. Understand how target markets utilize the Internet. [Target markets are garden centers, growers, re-wholesalers, brokers, landscape professionals.]
2. Identify the most sought after information, search functions and services desired from an online plant buyer's resource for the nursery industry.
3. Develop insights into wholesale plant buyer needs and expectations and Internet usage.
4. Explore interest in features and functionality.

Use of electronic media has exploded, particularly in certain segments of the horticulture industry, making a robust online tool even more critical. It doesn't appear that we need to create and maintain our own plant database (rather we can be an aggregator of vetted, informative sites). The OAN executive committee was briefed April 12 and was excited about results. Key findings include:

- **Online search is an important tool in the industry.** Plant information is highly sought. 86% of phone survey respondents use the Internet to find plant information and 74% of these go online daily or weekly. However, only 20% are very satisfied with their search experience.
- Sixty-seven percent (67%) of phone survey respondents already use the Internet to search for nurseries or other plant sellers, a function already provided by NurseryGuide.com.
    - Garden centers and re-wholesalers are more active plant searches than others. **Tailoring the site to type of business has merit.**
    - The churn rate, defined as the number of sellers that a buyer replaces in a given year, compared to the total number they purchase from, is fairly low at 9.5%,
- Only trade shows were reported more frequently as a primary method for finding nurseries and growers.
- **Solve the availability problem** and we've got a captive audience. The need to know availability of a plant prior to making a phone call is very high, with 75% of all respondents reporting that this is important or very important.
- Respondents want accurate information including size/habit/cultural information, plant photos, zone information and in some cases, plant substitutions. The top frustrations with online plant information search are **inability to find the info they want or the problem of finding vague, unreliable or conflicting information**.
    - NurseryGuide.com can be an aggregator of the best sources for this type of plant information, rather than building and maintaining a plant database.

- **Top feature requests** are new varieties information, my-state/my-zone plant information, shopping list help, and RFP-type functionality. The most interesting feature, "Type in a plant name and you would get back a contact list of growers who report that they grow or carry this plant" garnered interest from all business types.
- Forty-five percent (45%) of respondents report that they have a cell phone with a web browser that allows them to search on the Internet. Forty-three percent (43%) of those that do have web-enabled phone report that they search for plant information using the phone.

Concurrent to the research, Oaktree Digital met with Beth Farmer, OAN's web master who is also the staff resource most involved in the plant listing process, to begin assessing the data mapping process for online nursery guide and the OAN's existing technical platform.

Various meetings moved the project forward, in particular meeting with OAN staff representatives and members to delve further into functional priorities for the online tool. Meeting took place on April 28 and was led by Oaktree Digital and happy inc. It included OAN members Mark Fordice (Pivot Group), Roger Miller (landscape designer), Jolly Krautmann (Heritage Seedlings, a large grower), Sam Pohlschneider (Pohlschneider Nursery, a small grower), and Jenni Burkhead (J Farms, a small grower). OAN staff included Jeff Stone, Elizabeth Peters, Beth Farmer and Ann Murphy.

Oaktree/happy inc. prepared and delivered a strategic plan and presentations to the OAN Marketing Committee (June 2) and Board of Directors (June 14), offering functionality scenarios by industry segment (garden center, designer/contractor, grower, rewholesaler/broker) and platform recommendations. A technical plan for a website that will consist of a description of user profiles, identification and analysis of website tasks, and proposed high-level website architecture to guide the development of an RFP for the construction of the online buyers' guide was also provided.

Key findings and recommendations from the plan include:

- While the site will be rich with information and resources, by employing appropriate site architecture, we need to ensure that the site content does not overwhelm the user. This, combined with a welcoming and thoughtful visual design, will create a meaningful and intuitive user experience.
- OAN members will determine how actively they want to manage their profile, visibility and inventory information on the online nursery guide.
- Search engine optimization is critical to the long-term success of online nursery guide and to increase grower visibility.
- Home gardeners finding the site will be redirected to the OAN's print or online retail and garden center guide.

- The technological platform to support a robust, best-in-industry online nursery guide needs to be powerful, scalable and cost-effective; developed in an open-source platform; and designed for a user and roles-based experience.
- OakTree Digital encourages using best-of-breed third party tools, matching existing modules to desired features, documentation and prioritization of requirements, and the latest coding techniques and standards.
- Benefits and opportunities for OAN members and companies with listings in online nursery guide:
    - Increased efficiency by serving as a centralized information and communication portal with real-time updating capability.
    - SEO allowing customer to find appropriate site content, based upon common and industry search terms.
    - Extended market reach through increased exposure to new customers and partners, and greater awareness regarding product availability.
    - Qualified lead generation by pre-qualifying registered site users.
    - Increased revenue potential for growers through RFP functionality
    - Networking opportunities that allow members to “like” others and establish business relationships.
- Benefits and opportunities for OAN:
    - Increased efficiency by serving as a repository for up-to-date member information provided and maintained by members.
    - Brand awareness through increased reach, improved experience and improved OAN brand representation.
    - Extended market reach through SEO and site usability.
    - Accurate and timely listings by providing easy-to-use, intuitive account management tools.
    - Increased revenue potential through increased membership opt-in, and future implementation of advertising revenue strategy.
    - Improved analytics.

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The two principal staff involved with this project is Ann Murphy, director of marketing, who will oversee the project and work directly with representatives of each partnering entity, and Elizabeth Peters, director of publications and communications. The Executive Director will provide general oversight for the project and will keep the association's leadership engaged and informed of the project's progress.

The OAN board identified an online Buyers Guide as being of high strategic importance for the industry and for the association to add value to its members. Members of the OAN Marketing Committee and members-at-large agree with the board’s assessment. Marketing Committee members, representing large and small growers and landscape designers, are actively involved in providing guidance and feedback and supporting OAN staff members.

No significant project delays were encountered. The OAN did not incur any travel expenses directly related to the focus groups as was originally anticipated; however OAN had out of pocket costs for group moderator travel expenses which exceeded the original estimate, increasing the OAN cash contribution to the project.

OAN incurred additional expense when it asked OakTree Digital and happy inc. to present the strategic plan to the OAN marketing committee and board, also increasing OAN's cash contribution.

Due to timing of publications, summary research findings were published in the August issue of *Digger* instead of the anticipated July timeframe.

## GOALS AND OUTCOMES ACHIEVED

*Work Plan*

The OAN employed market research, technical and business analysis to produce a detailed plan for a comprehensive online nursery buyer's guide. The data acquired by this research provides the nursery industry with information about how the internet is used currently to research and purchase plant material.

The OAN issued an RFP and engaged a market research firm to conduct facilitated focus group discussions and a telephone survey to identify and characterize buyer needs and expectations. Focus group discussions occurred in January 2011. Information generated by the focus group discussions was tested and affirmed in the marketplace through a telephone survey to determine the utility and value of specific benefits and features of an online buyers' guide. Additional feedback was obtained from OAN members to determine what functionality growers would value and support. Market research results were published in a national nursery publication (*Digger*, published by the OAN) and guided the technical analysis and assessment for a detailed description of a comprehensive, online plant database with an accompanying search function.

With respect to the technical plan, OAN issued an RFP and contracted with a professional interactive agency to participate in the key milestones of market research, leveraging these findings into the development of a technical plan and preliminary user profiles, task analysis, and a high-level proposal for web site architecture. This plan covers audience, user profiles, and offered workflows that are most relevant for these profiles. A technical platform, architecture and preliminary feature set was provided as well.

Ultimately, the resulting technical plan provides a clear foundation for scope, budget and timeline and will serve as a blueprint for the development of a comprehensive online nursery buyer's guide and for seeking additional funding. Using the market research and technical documentation, the OAN applied for and received additional USDA Specialty Crop grant funding for FY2011-2012 to implement the online buyers guide.

| Project Activity | Who | Timeline |
|---|---|---|
| Issue market research and technical assessment RFPs | OAN staff | October-November 2010 |
| Conduct facilitated focus group discussions | Market research firm | January, 2011 (1 week) |
| Conduct telephone survey in key market channels | Market research firm | February 2011 (4 weeks) |
| Compile survey results and report findings | Market research firm | Early March, 2011 |
| Publish results in "Digger" magazine | OAN staff | August, 2011 issue |
| Develop user profile analysis and functional and technical specification documentation | Interactive agency | April, 2011 (4 weeks) |
| Create project scope, budget and timeline (online nursery guide business plan) | Technical development agency | May, 2011 (3 weeks) |

Expected Measurable Outcomes
Goal – Procure market research data to define a plan and proposal for the development of a nationally recognized and respected online nursery buyer's guide. Completed March 2011.

Performance measurement – Better define the scope of work necessary to develop a nationally recognized and respected online nursery buyer's guide, allow for an effective RFP process for its development, and enable the OAN to seek further funding through USDA's VAPG and other grant programs. Completed June 2011.

Benchmark & Target – Authored by Mark Fordice of Pivot Group, summary research findings were published in the August 2011 Farwest Edition of *Digger*. He's a principal of the company that performed the research. Because Digger readership isn't measurable, we will post a summary of the results on the OAN Web site in November (originally scheduled for August) with an email blast to OAN members (target is a 10% click-through to the results).

**BENEFICIARIES**
*Benefits for growers and OAN:*
This grant sets the stage for upgrading the OAN's online buyers guide. Growers and the landscape designer on the OAN marketing and executive committees, on behalf of OAN members, are eager to take advantage of the next stage of the project: building and implementing a robust online buyers guide with SEO-maximizing functionality. OAN staff and growers are encouraged by the possibility on an online buyers guide to serve as a centralized information and communication portal and changing the current buyers guide listing process to one of increased

convenience and streamlining of the print-driven process. We anticipate increasing ease of use will increase participation resulting in increased visibility for listing growers and revenue for the OAN. Additional benefits include: extended market reach through increased exposure to new customers and partners, and greater awareness regarding product availability; qualified lead generation by pre-qualifying registered site users; increased revenue potential through RFP opportunities; improved OAN brand representation; accurate and timely listings by providing easy-to-use, intuitive account management tools; increased revenue potential through increased membership opt-in, and advertising/sponsorship opportunities (OAN expects to see revenues generated in FY2013); improved site analytics; and perhaps building a sense of ownership and trust among OAN members to foster enthusiasm and continued support for the OAN and its efforts.

*Benefits for potential buyers:*
If we're able to incorporate most/all the priority functionality identified in the research, potential buyers and others related to the nursery industry will seek out the site, and thus listed nursery growers, because the site will help them do their jobs better and the site will be a source of useful and hard-to-find information. It will address the top feature requests: new varieties information; my-state/my-zone plant information; shopping list help; RFP-type functionality, which will help solve the lack of availability information; and "type in a plant name and you would get back a contact list of growers who report that they grow or carry this plant."

Aggregating and vetting plant information sites that provide size/habit/cultural information, plant photos, zone information and in some cases will address on of the top frustrations with online plant information searches: the inability to find the info they want or the problem of finding vague, unreliable or conflicting information.

This project showed how the internet currently is—and is projected to be—used by industry buyers to research and purchase plant material. Discovering that the OAN could serve as an aggregator of plant characteristics, etc., rather than developing and maintaining the information makes the actual building and maintenance of a robust online buyers guide feasible and manageable. Research results also have the potential to influence how nurseries nationally allocate Web-based and social networking resources for their company Web sites, sales force and customer base.

## LESSONS LEARNED

The OAN wrote the grant application thinking it would need to offer a gallery of plant photos and information, but research indicated a less costly and more reliable tact would suffice: act as an aggregator of high quality plant information. Nurseries listing plants will be encouraged to provide photos to increase the visibility of their nursery.

The opportunity for an online Nursery Guide to make it easier for growers to provide listing information was deemed one of the greatest potential benefits of the project. (Currently, due to

print deadlines, we ask growers to provide listing information during peak shipping season. The recommended technical structure would allow listing updates at the grower's convenience.) The process has the potential to significantly reduce staff time dedicated to the plant listing process—that staff time can be readily redirected to other priorities—and encourage more grower participation.

Buyers would like to have real-time online availability. There is significance resistance by growers to supporting this functionality. Growers are unwilling or unable to provide the information in a format that would be manageable; and currently inventory availability is in many different formats, is often password protected, or in some cases, is not currently updated on a regular basis. Additionally, there are concerns that it would put them at a competitive disadvantage.

**TITLE: ODA-S18 Oregon Carbon Reduction/Carbon Neutral Program – *Final Report (Approved 2/20/2013)***

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**PROJECT SUMMARY**

The Oregon Carbon Reduction/Carbon Neutral Program will be a first in the nation certification program for the wine industry to incorporate carbon reduction into business operations and appeal to the growing value-based consumer market. The wine industry faces a growing crisis as predictions show climate change will dramatically impact seasonal growing conditions and may jeopardize Oregon winemakers' ability to grow cool-climate grapes, including Pinot noir and Pinot gris, which account for nearly 75% of Oregon's planted acreage. The Oregon Environmental Council (OEC) and the Oregon Wine Board (OWB) joined together to lead an initiative for Oregon wineries and vineyards to assess and reduce their carbon footprint, following national standards and best practices. The next step is to have that action and leadership on carbon reduction certified by a third party. We will partner with Low Input Viticulture and Enology (LIVE), the most prevalent sustainability certification organization in Oregon.

The economic activity that the Oregon wine industry contributes to the state's economy was estimated at $1.4 billion in 2006. Oregon wine sales alone were estimated at $240 million in 2008. The impact of climate change could have a devastating impact on one of the state's best known specialty crops. According to a study published in the *Proceedings of the National Academy of the Sciences*, the U.S. wine industry is among the industries that are most susceptible to the effects of global climate change. The report asserts that by 2099, between 50% and 81% of the areas suitable for growing premium wine grapes will decline. Already in Oregon, vintners are seeing climate change impacts, such as the harvest occurring 1-2 weeks earlier.

Moreover, vineyards and wineries are both energy-intensive operations; integrating more energy efficient practices will make wineries more competitive. For example, the pilot program participant Left Coast Cellars recently installed two solar arrays totaling more than 82 kilowatts on their estate near Rickreall, Oregon, saving them more than $10,000 a year with an expected return of investment of seven years. They also installed meters on their gasoline and diesel tanks to accurately track and measure usage, saving more than $3,000 in fewer than nine months.

Savings like these should be available to all Oregon wineries especially now as they struggle to compete in today's economy. This program will be offered and available to the 400 wineries operating across Oregon. The fourteen wineries that completed the first year of the carbon reduction program are committed to becoming certified as soon as it is available. We expect that

by the end of two years, the program will be expanded to 45 wineries, representing over 10% of the wineries in Oregon.

Additionally, addressing carbon issues also responds to growing consumer concern about sustainability of the products they buy. According to the October 2009 *Nielsen Economic Advisor Update for the Beverage Alcohol Industry*, 80% of the U.S. population show some "green" motivation and 34% are dedicated to it. Establishing a carbon certification program positions Oregon as a leader to proactively address climate change and helps to strengthen the Oregon wine industry's brand about sustainability. Globally, about a dozen wineries and only two in the United States have declared themselves to be carbon neutral, which is why Oregon's leadership on carbon reductions is so significant.

**PROJECT APPROACH**

*Tasks Performed*

- LIVE and OEC hired a full-time project manager
- Organized volunteers for a technical and advisory team to guide the program standards, consistent with national best practice standard for greenhouse gas reporting (http://www.crchallenge.org/about/advisory-committee/ & http://www.crchallenge.org/about/technical-committee/)
- Developed brand identity, mission, and website to clearly and publicly make the transition from the pilot program to the certification program (www.crchallenge.org)
- Completed the pilot program for remaining participants with reports to reflect total yearly electricity totals and letters to each participant to purchase Renewable Energy Certificates and Carbon Offsets, a requirement of the pilot program
- Delivered technical presentations at wine industry events, universities, and sustainability conferences including the Washington Association Wine Grape Growers, Oregon State University, and Net Impact Annual Conference
- Produced a consumer campaign at all Oregon New Seasons stores and Hollywood Fred Meyer in Portland, Oregon for the month of April 2012 with wines in the program (see images in the Appendix. Images included in order are: pocket-size trifold brochure, tabloid size poster, small shelf-size identification card, and image of store wine steward with the main display)
- Oversaw winery inspections by the Oregon Dept. of Agriculture to validate greenhouse gas data reports and observed several onsite inspections to learn what improvements could be made to prepare the winery contact for the inspection
- Built relationships with potential members through workshops (three provided by this program), presentations to regional winery groups in Oregon and Washington, and wrote articles for industry publications about the program (for program event listings, see: http://www.crchallenge.org/about/events/). See previous reports to the ODA for articles

Conclusion and Recommendations

The project partners and participants were highly engaged in this relevant and timely project which demonstrates the project's effectiveness and willingness of participants to evaluate their energy and fuel use. The grant amount was appropriate to complete most of the tasks and activities, the organizational management was effective with oversight from LIVE, and the program standards are continually improving with feedback from members and the goal of making the program available to other agricultural audiences. The program can also be used as a model for other agricultural-related carbon reduction management projects such as *The Climate Friendly Nursery* program.

The greatest challenge was to grow the membership to 45 wineries during the grant period. Several activities led to the success of adding new members including energy efficiency workshops, peer-to-peer networking, presentations to wineries by the program manger, and one-on-one visits by advisory members with the program manager. To further increase membership, the program manager recommends generating a stronger demand for wineries to participate in the program from their supply-chain vendors, consumers and distributors. In this way, the wineries can see a return on their investment of time spent on paperwork, costs for facility upgrades, and fees paid to the program for membership. As such, a new workshop will be held for wine distributors to learn about the merits of sustainably produced wine in the Northwest on October 30, 2012 in partnership with LIVE. One of the goals of this workshop is to build awareness of the program by distributors and for them to mention the program to the wineries they represent. The event will be held at the Food Innovation Center. View the invitation here: http://liveinc.org/lectures/13089.

The contributions and role of project partners in the project, included:

- Low Input Viticulture and Enology (LIVE) staff and board members: LIVE, a nonprofit, 501c3 expertly administered the program. The project benefited greatly by partnering with an established organization in the industry it served.
- Oregon Environmental Council: The executive director of Oregon Environmental Council, Andrea Durbin, worked directly with the individuals and organizations identified as partners and key collaborators to accomplish the goals of this program. Ms. Durbin and her staff provided direction, facilitation, and strategic leadership for the pilot program and the certification.
- Advisory team and technical teams: For a complete list visit: http://www.crchallenge.org/about/advisory-committee/ and http://www.crchallenge.org/about/technical-committee/

## GOALS AND OUTCOMES ACHIEVED

The results and accomplishments can be understood in terms of the three stated goals for the grant:

(1) Increase the number of wineries and vineyards actively managing and reducing their carbon in Oregon and Washington from the current 14 wineries to 45 in two years.

As of this grant period there are 18 new members seeking certification. In some cases, members that recorded their energy use over the two-year grant period reduced their energy and fuel use by 18% to 24% of metric tons of carbon dioxide equivalent per 750ml bottle of wine. In addition, many winery professionals have been educated about energy efficiency - in the winery - from attendance at the three workshops, regional presentations by the program manager, energy professionals, and winery colleagues for best management practices in energy efficient facilities.

Current members: 18 (AtoZ and REX HILL operate from the same facility)
A to Z Wineworks, Amavi Cellars, Chehalem, Cristom Vineyards, Domaine Drouhin, J. Christopher Wines, Left Coast Cellars, Lemelson Vineyards, Mahonia Vineyard, Pepper Bridge Winery, Ponzi Vineyards, REX HILL Vineyards, Sokol Blosser Winery, Soter Vineyards, Stoller Vineyards, VIDON Vineyard, Willamette Valley Vineyards, Winderlea Vineyard and Winery, Youngberg Hill

Potential Members by December 2012
Ste. Michelle Wine Estates (all Oregon and Washington facilities – estimated 8 facilities total for 13 brands – **See PDF proposal attached** that demonstrates a strong partnership between this program and LIVE), Bridgeview Vineyards, Reininger Winery, and Dobbs/Wine by Joe.

(2) LIVE to create the first carbon reduction management program in the nation, which will first be made available to the wine industry and after the first two years, potentially opened to other agricultural sectors if there is sufficient interest.

LIVE's leadership provided the guidance necessary for the accomplishment of the certification program that measures energy use, sets goals for reductions, and verifies reductions by a third-party. See www.crchallenge.org

(3) Increase consumer awareness of the Oregon wine industry's commitment to sustainability. Once there is a carbon management certification program, the Oregon Wine Board plans to include it in the Oregon Certified Sustainable Wine® (OCSW) requirements. This will enable the OWB to put marketing and media relations resources behind the program and use the OWB's bi-annual awareness and perception tracking study to measure its impact.

The Oregon Wine Board (OWB) through its Oregon Certified Sustainable Wine® (OCSW) was not accomplished due to unforeseen challenges and changes at the OWB. Because of these unforeseen changes, the program manager produced a consumer campaign with the help of the wine stewards at Fred Meyer and New Seasons, and the third largest national beverage distributor, Columbia Distributing. (See Appendix for images).

The reduction of greenhouse gases through energy efficiency is a long-term process with multiple phases. This grant supported the program development phase that certifies by third-party the verification of energy reductions. To continue the work of the program in the long-term, the program will be funded by annual program fees, corporate donations, and grants.

**BENEFICIARIES**

The total economic impact in Oregon related directly or indirectly to wine was $2.7 billion in 2010, which is nearly double from 2006 according to a report conducted by Berkeley, Calif.-based Full Glass Research. Therefore, the impacts of a warmer climate that jeopardizes Oregon winemakers' ability to grow cool-climate grapes has an economic impact not only on vineyards and wineries, but also the supply and service companies that interact with this sector. The groups and other operations that benefited and that are influenced by the completion of this project include: beverage distributors who now have a transparent certification to support claims of sustainability in the marketplace, which is increasingly important to their sales; winery operations and sales staff who have embraced behavioral changes related to their company's goals of reductions from making more efficient use of travel to employee carpooling; and vendors that are striving to offer products that reduce energy and fuel use such as glass bottle manufacturers that are now marketing quality light-weight glass bottles in order to reduce the amount of fuel necessary for transportation.

The program impact is measured by the amount participants reduce their energy use in terms of metric tons of carbon dioxide equivalent per liter of wine produced that in turn reduces costly electricity and fuel costs in winery operations. Examples of activities toward this goal include the installation of a variable frequency drive that saves 50%-80% in energy consumption allowing fans and pumps to be used only when necessary. On-demand hot water systems can save 10%-20% on a water heating bill, and bringing in outside air at lower temperatures can capture an energy savings of nearly 20% of the energy costs related to a mechanical cooling system. Tank insulation can capture 20%-30% in energy costs and lighting retrofits can save 2.4% of a winery's total electricity use.

**LESSONS LEARNED**

*Provide a strong, contractual partnership with an organization that is already established in the industry.* The administration of a new program by an organization that has demonstrated good-standing and excellent leadership in the industry is critical to the success of a start-up program, such was the case with LIVE's role in the development of this program.

*Provide an appropriate mix of professionals for the technical committee.* An effective technical committee for this type of program is an industry professional such as a winemaker, paired with a paid professional technician, and a program manager to organize efforts for effective tool creation, meaningful program reporting requirements, and timely completion of tasks.

An unexpected outcome was the interest in the program by companies outside of intended audience such as beverage distributors, industry vendors, and retailers that were inspired and motivated by the work of the wineries to reduce their impact on the environment. The program offered these additional audiences stronger content to disclose when promoting the wines or selling their sustainable products.

*Future grantees will benefit from key strategic partnerships that are specific with deliverables and a stated path for how to handle changes in the agreements prior to project development.* Partnership roles that are either paid or voluntary should be clearly identified, technical in nature, and contractual to enhance the success of a new project by saving time to research volunteer partners or submitting to requests for proposals.

*Research and be able to clearly state the short-term and the long-term barriers to project participation prior to project development.* In the case of this project, barriers to entry were program fees, and most wineries were unable or unwilling to complete paperwork routinely (monthly or yearly) for a perceived lack of personnel resources.

**TITLE: ODA-S19 Promotion of Fresh Market Potatoes in Southeast Asia – Final Report – (*APPROVED 1/30/12)***

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## PROJECT SUMMARY

- The potato industry in Oregon and Washington State (US West Coast) determined a need to promote fresh product and new culinary techniques in the SE Asian countries of: Singapore, Vietnam along with Hong Kong and Macau, China.
- The S.E Asian dining industry has undergone many changes in recent years. Western cuisines are growing in popularity with many international restaurateurs. A young population has developed tastes for American cuisine. West Coast potato varieties and preparation techniques were demonstrated at each of these four changing markets.
- Vietnam is unique in respect to the approval of market access for US Fresh Potato products in 2010. Most Vietnamese people had not seen the variety of potato choices available. The only varieties available prior to our mission were limited to two yellow fleshed potatoes grown in Vietnam or imported from China.
- Oregon Potato Commission (OPC) funded a trade mission to the 2010 SE Asia Macau Wine and Gourmet Show in October-November 2010. This project confirmed the interest by many restaurant chefs and consumers in SE Asia. It was also apparent that many consumers indicated the new potato varieties were novel but aroused concerns about genetic modification, flavor, culinary preparation, greening and color-retention. Consumers expressed the need for more information before making a purchase decision. These concerns were addressed during the 2011 trade mission to S.E. Asia along with introduction of the product.
- ODA-2810-GR complimented a FY-2008 grant ODA-2366-GR and FY 2009 grant ODA-2574-GR that OPC utilized on international travel to Taiwan, Philippines Hong Kong and Macau. Building on the previous Specialty Crop State Block Grant trade mission as well as the OPC funded mission to the Wine and Gourmet Show has increased personal relationships with many people in SE Asia, which is very important in their culture.

## PROJECT APPROACH

- This project did address the focus area of **Specialty Crop** activities that will enhance the competitiveness of the West Coast potato industry. The overall goal of the project was to develop additional fresh potato sales volume to S.E. Asia. The project had several

components: (a) increase awareness of West Coast table-stock potatoes; (b) demonstrate western cuisine; and (c) add personal relationships, which will all lead to additional sales.

- The 2011 trade mission was attended by Oregon Department of Agriculture (ODA): Director, Katy Coba, Assistant Director, Agriculture Marketing Services, Dalton Hobbs, Administrator, Commodity Inspection Division, Jim Cramer, Washington State Department of Agriculture (WSDA): Director of Agriculture, Dan Newhouse, Manager, International Marketing, Janet Leister, Washington State Potato Commission (WSPC): Executive Director, Chris Voigt, Assistant Executive Director, Karen Bonaudi, WSPC Chairman, Darrin Morrison, Commissioner, Roger Hawley, Port of Portland representative, Barry Horowitz and Oregon Potato Commission (OPC): President & CEO, Bill Brewer, Commissioners Jim Carlson and Leif Benson alone with Oregon grower Jeff Urbach.
- Both ODA Director Coba and WSDA Director Newhouse welcomed guests to each event and provided a high level of importance to the mission. Their marketing and inspection staff were available to answer any Phyto and Phyto-Sanitary issues that were asked.
- Chef Benson provided unique potato preparation techniques at each demonstration along with demonstrating how to determine best uses for each potato type and variety.

**Chef Benson and Jim Cramer**

**Hong Kong Culinary School Potato Demonstration**

- OPC completed this project with a Vietnam Potato Importer Reverse Trade Mission (RTM) in September 2012. OPC provided an Oregon Potato Industry Tour to seven Vietnamese Company representatives and one RTM contractor. The importers were: Anh Nguyen, Asian Chemical Corp., Linh Dang, TMT Co., Bach Tran, Vinh Cuong Trading & Marketing Co., Hue Nguyen, Kim Bang Co., Hai Le, Mai Trang Project Development-Trading Corp., Dung Le, Retail Representative (Metro Cash & Carry), Phuong Pham, Tuphuong Co. and contractor Francis Lee. All Oregon potato shippers were notified of the RTM. Five companies accepted an invitation to bring the RTM members to their operation. Each of these Vietnamese companies has intentions to import Oregon potatoes.

**Vietnam RTM with Baley/Trotman**

**RTM watching State Inspection**

**RTM visiting ODA Portland** **RTM at Amstad Produce**

- US FRESH POTATO EXPORT STATISTICS (Metric Tons)

| Country | Market year July 10-June 11 | Market year July 11-June 12 | Percentage Change |
|---|---|---|---|
| Singapore | 6,020 | 5,937 | -1.4% |
| Hong Kong (includes Macau) | 3,551 | 3,630 | + 2.2% |
| Vietnam | 220 | 487 | + 121.4% |
| Total | 9791 | 10,054 | + 2.7% |

- OREGON FRESH POTATO EXPORT STATISTICS (Metric Tons)

| Country | Market year July 10-June 11 | Market year July 11-June 12 | Percentage Change |
|---|---|---|---|
| Singapore | 0 | 0 | |
| Hong Kong (includes Macau) | 0 | 0 | |
| Vietnam | 31.6 | 169.3 | + 536% |
| Total | 31.6 | 169.3 | |

- Oregon has not seen an increase in fresh potato exports to Singapore or Hong Kong since the trade mission, but has seen a fivefold increase in Vietnam. The fresh potato market access for Vietnam has only been open since 2010, so early importers should see the greatest increase in market.
- Conclusions & Recommendations

1. A desire to consume Oregon Fresh Potatoes exists in SE Asia
2. Continue to build relationships with importers, retailers and users
3. Provide educational materials
4. Provide Point of Sale materials to establish new consumers
5. Provide recipe information
6. Conduct additional Trade Missions to SE Asia

- Favorable or Unusual Developments
    1. An added benefit to Oregon farmers happened because several of the RTM members were looking for other products that could be added for importation from Oregon. Some of these included: Dairy Products, Onions, Carrots and Garlic. During the RTM, if a potato grower also had any of these products it was brought to the attention of the members, so they could continue discussions at a later date.
    2. Vietnam recently closed fresh potato access to China because of high chemical residues.
    3. China has been Vietnam's largest importer of fresh potatoes.

**GOALS AND OUTCOMES ACHIEVED**

- A team of six Oregon and Washington potato commission members attended the 2010 Wine and Gourmet Asia Show held in Macau, China October 28-30, 2010. During this mission the two organizations displayed several specialty potatoes and presented three different potato preparation methods using four potato varieties.
- Visitors at the Macau show had great interest in the varieties and preparation methods being demonstrated.
- Information regarding the Macau show has been distributed to all of the fresh potato shippers in Oregon and Washington to prepare for the 2011 SE Asia mission.
- An outline was prepared to determine mission member selection and potato varieties to be presented.
- The OPC Trade committee has developed a lottery system to use when determining participants of the SE Asia mission.
- OPC Staff and WSPC staff discussed the financial constrains Washington State Government is now under. Participation of WSPC will be determined in the next month.
- A request was made to the United States Potato Board (USPB) for Singapore consultants. USPB is unable to provide contact information due to restrictions.
- An OPC Newsletter article has been written describing the SE Asia mission and will be included in the May issue.
- Stephen Chu & Associates, Taiwan, was contacted requesting a RFP for Singapore and Vietnam. OPC contracted with him for past missions. Stephen suggested Francis Lee.
- Contacted Francis Lee and sent RFP for project in Singapore and Ho Chi Minh City, Vietnam.

- Received three applications for two OPC sponsored trip expenses. As per Trade Committee request, a lottery selected: Jeff Urbach and Jim Carlson. Their spouses are invited to participate at their own expense.
- Finalized potato varieties to be used and demonstration methods for each variety.
- WSPC confirmed their participation with a change in staff oversight. Mission will now be a joint Washington State Specialty Crop State Block Grant including WSDA and ODA along with WSPC and OPC.
- Finalized mission dates and started travel expense requests.
- Purchased air tickets for all OPC participants
- Started travel schedule for all participants including: air, ground, water and hotel.
- Requested all Passport information from all participants
- Determined printed material outline.
- Contact Hotels in Singapore, Ho Chi Minh City and Macau.
- Contact US ATO Office in Hong Kong for help with their area.
- Contact Hotel in Hong Kong.
- Arranged all hotel reservations for all participants
- Arrange all ground and water transportation in Hong Kong and Macau.
- Arrange Hong Kong ATO reception titled "Taste of America".
- Purchased potatoes to be transported to Seattle then air-freighted to each country.
- Approved all demonstration locations and site visits.
- Arranged for Port of Singapore site visit after Port of Portland (Barry Horowitz) set-up contact.
- Approved Macau and Hong Kong demonstration sites and area tours.
- Arranged for all demonstration facility requirements at each location.
- Determined cooking techniques to be used and equipment needed to perform those activities.
- Conducted one pre-trip conference call with all potato commission participants.
- Conducted one conference call with WSDA, WSPC and OPC representatives.
- Began mission.
- Continued to address billing issues and product shipment issues.
- Dealt with all changes as needed.
- Conducted demonstrations.
- Conducted a Post Demonstration Review with all participants.
- Completed mission.
- Recapped expenses.
- Continue to evaluate potato exports and potential markets with the participants on this mission.
- Contacted Francis Lee to provide Reverse Trade Mission participants from Vietnam to Oregon in 2012.

- Provided opportunity to Oregon Potato Growers/Shippers to contract shipments to Vietnam.
- Conducted Vietnam RTM for seven Import Companies at all Oregon fresh growing regions wishing to locate fresh potato products.

Long Term progress:

1. Positive relations between Importers/Consumers and Oregon Potato Industry has been advanced.
2. Fresh Potato Shipments to Macau, Hong Kong and Singapore have not yet improved, but awareness of Oregon product has been made.
3. During each demonstration and presentation many SE Asian consumers were made aware of the variety of fresh potato choices from Oregon. A great deal of interest was seen, especially with the purple and red varieties
4. Oregon Fresh Potato Shipments have started to Vietnam:

**Oregon Potatoes in Vietnam Grocery Store**

5. **Vietnam Ho Chi Minh City Newspaper article with ODA Director Coba and Assistant Director Hobbs.**

FORUM

VCCI

ECONOMIC AND MARKET

Enjoy U.S. Potatoes at Metro

On 7/10/2011 at the center of M ero An Phu ( District 2) and M ero Phu Nhuan ( Q. 13), Ho Chi Minh, the agricultural union of Washington and Oregon (North America) in collaboration with Metro Cash & Carry Vietnam (MCCV) introduction and presentation of dishes to eat special potato (potato characteristic of Western North America).



This activity is based in promotion of potato from the northwestern U.S. state of Washington and Oregon are too in Vietnam.

The purpose of the program to introduce special food ingredients new to customers, encourage consumers to try new products and test market for new products.

In addition, two centers METRO (An Phu and Phu Nhuan) also organized activities display products, cooking demonstration and try all kinds of dishes produced in the U.S.

Le Phuong

OTHER NEWS

Original Text:

Quảng cáo tiền Bản tin Hỗ trợ Xuất khẩu

**BENEFICIARIES**
The entire Fresh Potato Industry of both Washington State and Oregon benefited from this project. The shippers to benefit the greatest are the ones that are actively promoting their product in the targeted countries. Several grower/shippers either participated on the mission or with the RTM. In all cases the entire shipper list was provided to importers.

The US has seen an increase of fresh potato shipments to Singapore, Hong Kong and Vietnam from 2010 (9,129 MT) to 2011 (10,186 MT). Singapore increased 125%. Hong Kong (including Macau) increased 102%. Vietnam increased 180%.

**LESSONS LEARNED**

- Potatoes are part of the SE Asian diet, but not as a starch. Normal diet will include potatoes in soups.
- The younger populations in SE Asia are requesting potatoes as part of the dinner plate.
- There is a large number of European, Australian and American consumers in SE Asia that are aware of the importance of potatoes in their diet. Many look to purchase imported potatoes.
- The high-end restaurant has several potato choices on their menu.
- The middle class in SE Asia is growing, which allows them to purchase imported products.
- All SE Asians believe products from the US are safe to eat.
- Handling and storing fresh potatoes at the standards of the US are lacking.
- There is great interest in colored flesh potatoes, but the added cost is an issue.
- The 20% tariff is an issue in Vietnam.

Unachieved goals:

1. Shipments to Hong Kong and Singapore.
2. Increased Oregon Exporters.

OPC has made all shippers aware of the potential market. Many shippers are either waiting to see the market expand or are unwilling to risk placing their product in a container for 30 days on the Ocean. As the process is developed more product will be exported.

Additional product awareness needs to be made at the retail level. OPC along with exporters will work together to make this happen.

**TITLE: ODA-S20 "Eat Your Berries!" The Oregon Berry Festival – *Final Report (APPROVED 1/30/12)***

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## PROJECT SUMMARY

Today's Oregon berry industry faces a falling price per pound domestically due to the wide availability of imported berries. The demand for berries and value added berry products continue to rise globally, but purchasers in retail and manufacturing industries - look to less expensive imported berries to fill the need. Oregon berries, a premium berry crop, due to excellent growing conditions, statewide environmental quality and good farm and manufacturing practices, must differentiate themselves from imported berries. Showcasing the premium aspect of our berries, our growing practices and our region to consumers and wholesale buyers will highlight the value of Oregon berries.

Despite the state's wide ranging commercial berry crops, including strawberries, raspberries, blackberries, blueberries and cranberries, there is currently not an event devoted solely to the promotion of Oregon's berries. A solution that would address this need is the creation of a two-day festival – The Oregon Berry Festival with the branded title of "Eat Your Oregon Berries!" to showcase the state of Oregon and its berry industry, turn the spotlight on the wide variety of berries that are grown in our state and show premium Oregon berries as superior for use in products for manufacturing and retail sales

## PROJECT APPROACH

Cross Commodity Multi-Disciplinary two-day festival to showcase the premium aspect of all Oregon berries.

The Oregon Berry Festival allowed over 5,000 attendees the chance to both sample Oregon berries and interact with berry farmers and manufacturers. The attendees came from all over the world, some people had come from Australia and had read about the festival online, the trade mission from Taiwan and Korea also attended. Attendees repeatedly pointed out that they had come from various parts of the US to attend. This was a confirmation of our goal to promote the "Oregon" in Oregon berries and showcase the premium aspect of our product to both Oregonians and people from out of the state. Since there has never been an Oregon Berry Festival to highlight all Oregon berries it is felt that the tremendous attendance and interest indicated the need for such an event and the appreciation of it within the consumer arena. The timeliness of this event is evident in the support it received both by the public, the media and the berry industry.

Timeliness was also addressed in the fact that corporations are beginning to add Oregon berries to products, one example is the McDonald's Corporation has a triple berry smoothie selling nationally and perhaps internationally in the current market, this smoothie uses Oregon berries. When other companies see the success of such a product and can look to events such as the Oregon Berry Festival for tremendous interest in berries, they may choose to include Oregon berries in future products. The attendance at the Oregon Berry Festival speaks to the public interest; the extensive media coverage both locally and nationally shows the excitement generated within the media community. The Oregon berry groups worked together extremely well cooperating and working both as individual groups and as one unit to support the festival through financial contributions, volunteer hours and collateral promotional outreach. The individual members of the berry industry are overwhelmingly busy at this time of year harvesting and selling their crops, regardless of this burden, they made time to join to together to celebrate this event and meet with each other to promote Oregon berries as a category in the Oregon Berry Festival.

**GOALS AND OUTCOMES ACHIEVED**

1. Two day Oregon Berry Festival was created and held at the Ecotrust Building in Portland, Oregon on July 22-23, 2011
2. The festival had a Farmers market section (14 booths), with fresh berries of all varieties available at that time. Attendees could both sample and purchase the berries and interact with the individual farmers. No fee was charged for the booth, helping to encourage younger farmers as well as established farmers to participate
3. A value added products trade show was created (16 booths) to showcase products of all sorts made with Oregon berries. This show was held on the second floor of the Ecotrust Building. This popular part of the festival allowed attendees to learn how Oregon businesses use Oregon berries to create products that can be sold worldwide and how these companies use the premium nature and the Oregon "halo" to market their product.
4. Children's Area–A Children's Berry Playground was created with picnic tables and benches to encourage children to sit and use the materials provided to learn more about Oregon berries. Children were able to color and decorate wooden berry hallecks, color and match the parts of a berry on educational sheets, one for each berry type and do word search puzzles that highlighted words to describe berries as healthy. The Oregon Blueberry Commission character "Ima Blueberry" was present for both days of the festival and interacted with children handing out bookmarks with information on blueberries.
5. Berry Chef Cook Off–Six major Portland chefs were invited to participate in a cook off using up to three Oregon berry varieties in a savory application. The event, held on the roof top terrace of the Ecotrust Building, on Friday, July 22nd, drew 130 attendees. The chefs each provided a sample bite of their dish for the attendees who tasted the food and also voted for a people's choice award winner. Professional judges also tasted and rated

the dishes for a Grand Prize award. This event showcases the high end, gourmet application of Oregon berries in restaurant and food service uses.

6. Healthy Berry Booth – A booth was set up in the upstairs value added product show, with literature from all Oregon berry commissions showcased, along with promotional material created especially for the Oregon Berry Festival. Health benefit information was available and commission members were present to answer questions.
7. Agribusiness Tour–A tour was created to Kruger's Farm on Sauvie Island near Portland. Farmer Don Kruger personally conducted the tour with 15 attendees on each day. Kruger was able to talk to attendees about the reason why Oregon berries are better than other berries, discussing the clean air and clean water as well as the Oregon climate. Kruger also talked about the role of the berry farmer and what is involved in farming a commercial berry crop.
8. Collateral Promotional Material – Brochures were created for distribution at the Oregon Berry Festival that focused on the Oregon berry varieties, seasonal harvest dates and types of pack that are available commercially. The importance of purchasing Oregon berries was highlighted using the environmental attributes of Oregon as reasons for buying local. The brochure talked about the health and economic benefits of Oregon berries vs. imported berries. A consumer brochure gave tips for handling berries, harvest dates for berries and health benefit information. An Oregon Berry Festival Passport was created to help measure the number of attendees at the festival and to also help to make sure attendees visited all parts of the festival, since it was held both indoors and outdoors. The passport had attendees stop at five different booths, two outside and three inside to get their passport stamped by vendors. Photos of different berries marked booths with stamps. Copies of these photos were on prominent display at the information booth. This device helped greatly in tracking attendance and also moving people throughout the festival, giving all vendors good face time with attendees.
9. Outreach to local, national and international groups
10. The ORBC worked with WUSATA to bring in an inbound trade mission from Taiwan and Korea to the Oregon Berry Festival. The trade mission group attended the Agribusiness tour to see an Oregon farm in person and talk to an Oregon berry farmer. The group was able to return to the Oregon Berry Festival site and sample berries at the Farmers Market stands, listen to entertainment from the main stage and then proceed to the value added product show and tour that show speaking with vendors and exchanging cards and also purchasing product. The group then went to the Oregon Berry Chef cook off to sample gourmet dishes with Oregon berries and meet chefs who use berries in their establishments. Each group member was given a gift bag with the Oregon Berry Festival promotional material, highlighting all Oregon berries their availability, health benefits and premium nature.
11. The ORBC attempted to work with Health Care Groups in Oregon such as Kaiser-Permanente, Legacy Emmanuel, St. Vincent's Hospital, Oregon Health Sciences University and others to put on a mini Oregon Berry Festival in their locations stressing

the healthy nature of Oregon berries and their importance in diet. We were not successful in getting participation from any of these Health Care Groups. To fulfill this portion of the grant, ORBC reached out to New Seasons Market, who partnered with us on a week long event that allowed us to distribute 800 brochures on the health benefits of Oregon berries to New Seasons customers. Customers were also able to sample berries. Recipe cards were also provided to New Seasons to hand out during the entire berry season. New Seasons advertised this event online and in print advertising to their extensive consumer base. This reached a far wider audience than we would have in any other way.

12. Two hundred invitations were sent to retail grocery store managers, restaurant managers and retail outlets that might have interest in Oregon berry value added products. These companies were invited with a special card to come to the trade show and the fresh market area and meet the vendors.

**BENEFICIARIES**

1. Oregon berry farmers, berry packers, producers of value-added products made with Oregon berries, consumers, children, Oregon berry commissions and members. This festival also impacted the trade mission from Taiwan and Korea and the retail grocers, restaurants and retail outlets who attended. Customers at New Seasons benefitted from the educational outreach provided to them.
2. Attendance at the Oregon Berry Festival was estimated at 2,500– 4,000 people a day, based on the turn in rate of passports which we estimate represented one-quarter of the attendees. The Berry Chef Cook Off had 130 attendees and the Gala Berry Dinner had 86 attendees.
3. The Gala Berry Dinner, held Saturday, July 23rd in the evening allowed Oregon Berry Commission members and the public to interact with each other. Representatives of each commission gave a short talk on their industry and the importance of the “Oregon” in Oregon berries. This created a feeling of connection between the groups and helped to plant the seed for future cooperative ventures.

**LESSONS LEARNED**

1. Look at using both parking lots of the Ecotrust building or a larger site at a different location for any subsequent Oregon Berry Festival, to avoid over crowding
2. Work with vendors to make a stronger commitment, consider charging for booth space to assure commitment
3. Look for new partners for outreach in the retail grocery community to help spread the word about berries and health rather than health care providers

**TITLE: ODA-S21 Risk Management Seminars –** ***Final Report (Approved - 02/07/2014)***

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**PROJECT TITLE:** Risk Management Seminars

**PROJECT SUMMARY**

Fine turf grass production in Oregon is predominated by producers growing grass with production contracts for varieties that are protected by federal plant variety protections. These contracts are complex documents that producers need to understand prior to entering into long term agreements that affect their ability to market the crop they have grown. At the same time, understanding the pros and cons of the various types of business structure has never been greater and can make the difference between profitability and bankruptcy. Oregon Seed Council (OSC), along with all its member organizations and the Oregon Grass Seed Bargaining Association, proposes conducting a series of risk management seminars to educate producers on these issues.

Oregon's grass seed industry is a top value segment in Oregon agriculture. The industry experienced an unprecedented decline in the demand for seed in 2009-2011, especially seed for fine turf (golf courses, sports fields, home lawns and parks). These trends, as documented through the grass seed commodity commission assessment reports, the Oregon grass seed bargaining process, the Oregon Department of Agriculture's "slow-pay-no-pay" claims and concern expressed by banks and lending institutions, indicate Oregon's grass seed industry was in an extended economic crisis. The deflated economy and the Oregon tax law changes in 2009 created a situation that could have put producers at risk if they didn't have the correct business structure or enforceable production contracts.

The purpose of this project was to educate producers of fine turf and other minor crops in the area of contract law and business structure. Most fine turf producers are diversified and grow a variety of other specialty crops on their operations, such as hazelnuts, blueberries, Christmas trees, vegetable crops for food and seed, other specialty seeds and mint. OSC will choose regional sites in the fine turf production areas of the state and bring together experts in these fields for one day seminars which will feature topics such as business structure and risk management, information on production contracts, open market sales, marketing terminology, ORS 576.727 (commonly known as slow-pay-no–pay law) and lien law review.

If fine turf producers are going to survive in poor economic conditions, they will need to have the best possible business structure for their farm, have enforceable production contracts and a lean economic business plan. Producers typically are at a disadvantage, especially when negotiating the terms of production contracts with the corporate lawyers of most seed dealers.

As the seed industry matures, grass seed becomes more commoditized and downward pressure on prices continues. Especially during poor economic times, having contracts that are enforceable under ORS 576.727 could make the difference between farms surviving or filing for bankruptcy. At the same, the choices of business structures and the tax liability risk of each structure has increased exponentially and producers who are aware of their choices have a much higher chance of economic success.

In March of 2012 the Oregon Seed Council decided to send a delegation to South Korea to research the potential for turf grass seed markets in South Korea. South Korea is already a purchaser of grass seed for forage use. The recent free trade agreement with South Korea increased the possibility of opening new markets for turf grass seed in that country.

OSC requested a change in this grant to help fund this trade mission. As the industry worked to rebound from the depressed economic conditions of the past 3 years, it was determined that oversea markets for fine turf seed had the most potential for growth. The grant changes approved funded two members of the delegation's travel expenses to South Korea. Oregon Seed Council paid for one member of the delegation and those expenses were considered in-kind payments for this grant. The OSC delegation joined the WUSATA delegation in Seoul for the meetings and in addition to that event, traveled to Pusan to visit with port officials.

The delegation met with Korean importation officials, Korean port officials, Korean seed lab officials and end users of fine turf seed such as golf course and cemetery managers. The WUSATA event in April was the backdrop for these meetings and the only way to take advantage of this opportunity was to have delegates from the seed industry attend. The delegation reported on the trip to the industry by writing an article for the industry magazine: Oregon Seed.

**PROJECT APPROACH**

A contractor, Ralph Fisher Consulting, was selected and hired to carry out all phases of this grant. By hiring a contractor with industry knowledge, we have been able to achieve and surpass the goals that were outlined in the grant proposal. Working with a contractor with extensive knowledge of the industry gave me the capacity to negotiate for at least one additional seminar to be held, thus giving farmers more alternatives in locations and topics. Once on board, the contractor met with other minor crop (Christmas tree, mint, and blueberry) industry representatives to create a seminar topic and mailing list. The first seminar was scheduled and a list of topics and speakers was developed.

Six opportunities for growers to attend information meetings on Risk Management topics were held.

January 14, 2011 was the date of the first meeting in Salem, Oregon. The intent of the first meeting was to provide information to the growers in order to give them the opportunity to participate in the Revenue Crop Insurance program (AGR) prior to the January 31, 2011 signup deadline. George Harris, from Farm Credit Services, made a presentation for this part of the program Tim Bernasek of Dunn, Carney law firm presented a program titled "Managing Ag Labor Risk on the Farm".

Craig Reeder, Oregon Wheat Growers League President, gave a presentation on the Wheat Growers League and transportation of Willamette Valley wheat to Portland. There was no cost to the grant for this speaker.

This program was advertised through a mailing to the Oregon Seed Council mailing list, Oregon Grass Seed Bargaining Association e-mail list, Oregon Wheat Growers League e-mail list, OSU Extension e-mail list and an insert into the Lookout, the Oregon Christmas Tree Association publication. Sixty growers were in attendance.

On February 15, 2011, a meeting was held in the Yamhill County Public Works building. Tim Bernasek and Roberta Gruber, Oregon Farm Bureau, FEELDS program, were the scheduled speakers. This was our only program to begin in the afternoon. Notice was given through an insert to the Oregon Seed magazine, Oregon Grass Seed Bargaining Association e-mail list and OSU Extension e-mail list. Only two growers attended.

On February 17, 2011, the program was held in La Grande, Oregon, in conjunction with the Union County Grass Seed Growers and the Union-Baker County Wheat Growers Annual Meeting.

Mary Corp, Umatilla County Extension Agent, gave a presentation on Social Media: "The Good, the Bad, and the Ugly". This is a new topic. There is a need for growers to understand new ways that an industry can communicate and get their message out. This also helped us understand how others can get a message out quickly, whether positive or negative, about what the agriculture industry and farmers may be doing.

Tim Bernasek, Dunn, Carney, gave a presentation on "Managing Ag Labor Risk on the Farm" and added a discussion on "Agriculture Contracts and Farm Business Structure". Fifty growers were in attendance.

A group of growers in the Silverton-Stayton area have been meeting monthly for over thirty years. This group is known as the "Foothills Growers Association". The primary crop raised is Fine Fescue and this is the variety of grass that is still open field burned. Luke Kintigh was contacted and asked to make a presentation the growers on social networking and how quickly

information and practices in the farm community can make news in the public sector. Over 35 growers were in attendance. This meeting took place on March 3, 2011

March 11, 2011 was the date for the meeting in Central Oregon in Madras. Tim Bernasek and Roberta Gruber were in attendance to repeat the programs they had presented at earlier meetings. Evan Dickens, Jones & Roth, CPAs and business advisors, Bend Oregon, gave a presentation titled "Farm Business Structure from a Tax Perspective". The Jefferson County Extension Office has an e-mail list of 200 growers of specialty crops raised in Central Oregon. This was the method of contact for this meeting. We added a brief biography of the speakers and rsvp address to the meeting notice. Fifteen growers were in attendance.

On March 15, 2011, a meeting was held at the Linn County Fair and Expo Center. Bob Boyle, Farm Credit Services, was added to the program with a title of "AG Lending from a Bankers Perspective". Tim Bernasek and Roberta Gruber were also on the program. The invited list was from a merged mailing from a list of growers from the Oregon Grass Seed Commissions, Oregon Christmas Tree Growers Association, Oregon Mint Commission, and Oregon Blueberry Commission. Over 1,000 notices were sent out in the mail. Fourteen growers were in attendance.

The topics covered in these seminars included:

- Risk Management through Revenue Crop Insurance (AGR)
- Managing risk in how we are able to communicate the agriculture message to growers and the message that consumers receive through social media
- Managing employment risk on farms
- Services that are available to farms to provide support for ag labor issues (FEELDS program)
- Farm business structure from a farm organization and tax management of farm businesses
- Managing risk with good ag production contracts, and
- Managing risk with your ag lender from his perspective.

This series of seminars covered all the topics of the grant goals and objectives.

The total number of farmers attending has not reached the stated objective. 176 producers have attended our seminars. Our goal for this grant was to reach 400 producers and give them information about contracting, business structure and other risk issues faced by producers. Various methods of notifying growers were used. Numerous other specialty crop growers were notified of the meetings.

A new contracting law passed by the legislature was used to attract more producers to attend. OSC focused the contracting portion of the seminars on that issue and continued to search for other important issues faced by producers to include in seminars.

With the recent signing of the Korean free trade agreement, seed growers and other specialty crop producers have expressed interest in expanding markets in Korea. A new market potential program was designed with a presentation by the Oregon Department of Agriculture on the recent trade mission to Korea. The scheduled topic covered what the opportunities are for Oregon growers. In order to attract a larger audience, it was decided to hold a meeting on the Korean market potential in conjunction with a meeting on the potential of specialty crop producers using flax grown for fiber as an alternate crop.

A presentation to the Oregon Seed Council was made by Kenneth Barker CEO, Jay Nalbach CMO, and Ryan Leverenz of Naturally Advanced Technologies (NAT). NAT is a fiber production company with ties to the textile industry. The goal of NAT in Oregon is to develop a flax production industry to be used as fiber in the textile industry.

The seminar was held November 29, 2011 at the Linn County Fair and Expo Center, Albany. The seminar was advertised through minor crops group e-mail list and contact with area field men. The seminar was scheduled to coincide with a meeting that Crop Production Services, a chemical and fertilizer supplier, had scheduled for the same day. During the Risk Management Seminar, more than 50 farms and farm support individuals were in attendance. Unfortunately, Jerry Gardner, the ODA representative who was scheduled to give the presentation on Korea became ill and was not able to attend. Due to the last minute illness, the Korea presentation had to be cancelled but the flax for fiber presentation went on as scheduled. Jason Finnis, Co-Founder of NAT, and Jay Nalbach gave a presentation on why and how flax as a crop could be raised by farmers in the Willamette Valley.

The Oregon Seed Council, with USDA Specialty Crop Grant Funds, held a Risk Management Grant meeting on February 14, 2012 at the Linn County Fair and Expo Center. Oregon law firm of Evashevski, Elliott, Cihak, & Hediger was contacted to provide speakers for the seminar on the following topics:
Helen Nelson gave a presentation on the revisions on the new Grass Seed Contracting Law
Joel Howe gave a presentation on C-Corps, S-Corps, and LLCs: which structure works for today's farms and what the future holds in a changing legislative environment.
Steven Adkins gave a presentation on Reviewing your Estate Plan: what happens in the event of Death, Divorce, or Remarriage?

The event was advertised in the Oregon Seed magazine as well through electronic means. The blueberry and grass seed industry's combined e-mail lists consists of 548 names. Through tracking, it was determined that 235 of the messages sent were opened and read. These lists brought 31 individuals to attend.

Oregon Seed Council sent a delegation to South Korea to research the potential for turf grass seed markets in South Korea. A change in the grant budget was requested and approved to fund two members of the delegation's travel expenses to South Korea. They joined the WUSATA delegation in Seoul for the meetings and in addition to that event traveled to Pusan to visit with port officials. The delegation also met with Korean importation officials, Korean seed lab officials and end users of fine turf seed such as golf course and cemetery managers. The travel expenses paid for airfare, lodging, meals and in-country ground transportation for two members of the delegation. The Oregon Seed Council paid for one member of the delegation and those expenses have been credited against the in-kind requirement for this grant.

The delegation consisted of Roger Beyer, OSC Executive Director, Nick Bowers, OSC First Vice-President, Brian Humble, owner of Humble Solutions, a grass seed company which focuses on Korea markets and Garry Lacefield, Kentucky University Forage Specialist who contracts with the Oregon Ryegrass Commission as a consultant. The following article was co-authored by the delegation and was published in Oregon Seed magazine October 2012 edition:

> *"As we met in San Francisco airport to depart for Seoul, South Korea one thing was clear, the weather was not going to delay our departure. What would happen on the rest of the mission was much less defined. Over the next week things became clearer as we had a whirlwind tour of South Korea and hopefully solidified Oregon's position as the top seed supplier to the world.*
>
> *The Seed Council board had asked we attend the Western United States Agriculture Trade Association (WUSATA) conference and show to represent the Oregon Seed Industry. There we were to meet up with Katy Coba and others from the Oregon Department of Agriculture (ODA) in Seoul for the final stop on the WUSATA tour. The board chose the South Korea stop because of the long relationship Oregon seed producers have with shipping seed to this trade partner. Korea has been the industry's largest Asian customer until the recent increase in shipments to China.*
>
> *This mission was partially funded by an ODA/USDA specialty crop grant. While turf-type grass is considered a specialty crop, forage type grasses are not. Even though most of the current seed being shipped to Korea is forage type we were looking at the potential for increase in the amount of turf-type seed our companies ship, therefore the specialty crop grant funds were available for use. In a country of about 50 million people crammed into the geographic equivalent of Oregon, we discovered there isn't much room for turf.*
>
> *We decided to focus our attention on golf courses and their tombs (cemeteries). The golf industry is currently being serviced by Oregon companies and is a mature market. The potential here will be slow and steady as Korean customers work with existing suppliers. Unfortunately we discovered the tombs don't offer much potential either as they are not like our cemeteries, with nicely mowed lawns. They instead have*

*hillsides and canyons in very natural states. They do not mow the areas and rely on planting low growing, maintenance free grass, Zoysia is the current choice. Until our plant breeders can offer a cool season grass with similar growing patterns to Zoysia, it will be very difficult to convince them to change from current practices.*

*Four goals were developed for our mission; 1) Maintain current markets in Korea. 2) Work to break down any potential trade barriers that are present or may develop. 3) Enhance the relationship between Oregon Seed Industry and our international partners, including US APHIS officials, Korean importation officials, customs officials, ODA officials in Korea and any others not currently identified. 4) Educate ODA about grass seed issues.*

*We soon found out that, concerning these goals, our industry is well regarded and has placed itself in good position on the first two, but at the same time we have a lot work to do on the last two. Without exception, we discovered Korean seed purchasers are happy with the product they receive, stated the quality of seed they receive from Oregon is extremely high and are very happy with their Oregon suppliers. We met with multiple purchasers who are currently buying seeds from other countries and are looking for an Oregon supplier. The government importation and customs officials were very cooperative and did not identify any known problems with transportation or documentation of current shipments. The containers of seed move quite quickly through the ports and on to Korean customers.*

*The main trade barrier expressed was that the Korean government's list of acceptable forage varieties was quite limited and out of date. Their turf list seems to be much easier to get updated with new varieties. Some purchasers were asking us to help get new forage varieties on to their government's list. For turf-type grasses, that seems to happen regularly by means of companies making requests, but for forage type grasses, they have extensive field trial performance protocols that must be met which have even the Korean researchers confused. How to break that trade barrier was not made clear, but at least we were able to define a potential problem to work on.*

*In our first day of meetings, it became very clear that our biggest issue is the knowledge of our people of what the seed industry is and does. The meetings were set up by WUSATA, US Consulate and ODA representatives in Korea. We entered the meeting, greeted as "Oregon Hay Producers". As we were greeted with that same message in each subsequent appointment, it became quite clear that the seed industry is not well understood by our own people. By the end of the trip, we had straightened out that confusion and laid the ground work for better communication and education of our own representatives. ODA has contracted staff in Seoul, and we have invited him on farm visits whenever he comes to Oregon. This should help him to learn more of what the seed industry is about. As he is promoting Oregon seed in the*

*future, these visits and connections will help him to accurately reflect the Oregon seed industry.*

*As anyone who has traveled in a group can attest, spending entire days with the same people enhances relationships like nothing else can. The value to the seed industry by being with the ODA representatives for an entire week cannot be calculated. We now know all the key personnel on a first name basis and who to contact no matter the issue before us. This cannot happen without industry representatives agreeing to donate their time and spend more than 20 hours on airplanes with no personal gain beyond the benefit to the entire industry. We were all honored to be chosen to represent the Oregon Seed Council and are confident the trip will produce long lasting, beneficial results for the industry."*

Due to the harvest schedule of seed farmers and the grant timelines, an extension was granted from October 2012 to February 2013 in order to conduct the final Risk Management Seminar at a time that farmers would be likely to attend. After a review of the topics covered by previous seminars and the pattern of attendance by producers, there seems to be an abundance of opportunities for growers to access information. Many of them are sponsored by machinery dealers or chemical companies and include a sponsored lunch and prizes for attending. It was decided that our meetings were not attracting large numbers of farmers due to the competition of other seminars, therefore no other meetings where scheduled.

**GOALS AND OUTCOMES ACHIEVED**

More than 250 producers attended our seminars. Our goal for this grant was to reach 400 producers and give them information about contracting, business structure, crop and market diversification and other risk issues faced by producers. While we did not reach the number of producers we had projected, the number of complaints and slow pay/no pay claims at the Department of Agriculture declined more than our goal of 33% reduction. The complaints and claims peaked at 22 in 2009 and that number declined to 4 in 2011, 1 in 2012 and 2 this year-to-date. If one looks at the average annual number from 2004 -2008, the number of complaints and claims amounted to between 5 and 6 per year. Using 6 as a benchmark, a 33% reduction would be 4 claims. We have been at or below that number for the past 3 years or since we began doing these seminars.

The risk management seminars, along with a new contracting law passed by the legislature and the improving US and world economy all contributed to the reduction of slow pay/no pay claims. What percent of the reduction each of these should be credited with for the entire drop in slow pay/no play claims is impossible to determine. However, it certainly has helped to educate producers on contract issues and reducing business risks by diversifying crop production and market opportunities.

The goal of a measurable outcome for the use of grant funds in helping to fund a trade mission to South Korea was to see an increase in sales of turf grass seed into South Korea by 10%, as

determined by the phytosanitary certificates issued by ODA for seed shipped to Korea. ODA phytosanitary certificates do not distinguish whether the seed is turf or forage, but it is broken down by seed type. Using only the seed types most commonly used for turf purposes allows us to estimate the increase in turf seed shipments. In 2011, the year prior to our trade mission, there was 2.3 million pounds of turf-type grass seed shipped. In 2012, the year of the mission, total seed shipped to Korea increased while the amount of turf-type seed shipped was only 1.25 million pounds. In the first half of 2013, the shipments of turf-type seed has increased to 1.5 million pounds. While this 20% increase in the one-half year seems to indicate our mission was successful, it would be premature to say our goal was reached. It will take additional monitoring of the ODA reports on export phytosanitary certificates for the next few years to determine if the goal of a 10% increase was actually met. One could certainly conclude that using the Risk Management grant has helped increase the diversity of customers for Oregon-grown turf seed and therefore has helped seed producers with risk management.

**BENEFICIARIES**

Oregon's grass seed producers are the main beneficiaries of this grant. These nearly 1500 farms are quite diverse. Some only produce grass seed while for others, turf grass seed is a small fraction of what they produce.

Linn County is where the most monolithic farms are located. The soils in much of the county are good for producing grass, but without irrigation, not much else will grow profitably. These farms are the most at risk because they don't have other crops to soften the blow of market changes due to economic conditions, diseases, drought or other factors which lower the price or demand for grass seed.

The more diversity in crops produced reduces the risk to the farm entity of any one crop or market failure. One of the objectives of this project was to help educate these monolithic producers as to other options, either in production or markets to help reduce the current risk they are now carrying, some without even realizing the risk. The Korean trade mission was one area which was chosen to help reduce the risk of domestic market failure by increasing the demand for the product internationally. International markets, which have increased from less than 10% of total production in 2009 (survey data from OSC fine turf grass survey grant funded by ODA-2576-GR and phytosanitary data from ODA) to nearly 25% of production in 2012 (phytosanitary data ODA), have greatly helped reduce the risk to grass seed producers. This grant has helped that increase by educating producers about the risks of monolithic production and markets, as well as sending a delegation to South Korea in an attempt to increase the sales of fine turf grass seed there.

In addition to grass seed producers, this grant helped other commodity producers with our educational seminars. Christmas tree, blueberry and mint producers were invited to educational seminars in addition to grass seed producers. Outside of Linn County, most grass seed producers

grow other specialty crops on their farms. We used producer lists from these other commodity groups to increase the number of potential producers to invite, knowing there would be a large number of common names on the lists. The seminars we sponsored on labor, business structure and contracting were equally as valuable to any producer of these other specialty crops as they were to fine turf grass seed producers.

**LESSONS LEARNED**

Seed producers have very busy schedules and weather seems to be a major determining factor dictating their schedules. In anticipating this, we purposely only scheduled meetings during winter and early spring. What wasn't anticipated was the number of other meetings scheduled during this time period. There are four or five major fertilizer and chemical companies, the Oregon Wheat Growers League, county extension production programs and other various specialty crop groups scheduling meetings during this time frame. We have discovered it is difficult to schedule a Risk Management meeting without conflicting with another group's meeting on the same day or an adjoining day.

In addition to the many meetings already scheduled, January and February meetings have weather related risks. If the weather is dry, farmers are typically working on their farms because those days are rare. In inclement weather, they don't want to leave the farm due to the risks involved in travel. Rainy days, if you can predict those weeks in advance, seem to be what is needed in order to have good attendance.

It may be successful to hold meetings in October and November. Farmers seem to be willing to take a day away from their fields and there are less competing events during those months. Morning meetings that last only half the day seem to be more popular while afternoons don't work as farmers aren't likely to interrupt their day to attend a meeting.

Working with other groups or joining established events seems to be the most successful method to reach producers. Joining the long standing annual seed grower meeting in La Grande, OR, a small community 250 miles east of Portland, proved to be one of the most successful seminars. Using either time or distance to separate from other meetings is beneficial. Both methods were successful.

Seminar meeting notices and topics were quite important. The interest in agricultural labor laws was a surprise. Each time this topic was included, attendance for the entire seminar was higher than those without it. Calling the seminars "USDA-ODA Specialty Crop Grant, Risk Management Seminars" seemed to have caused confusion as to who was involved or what the topics would be. Changing the main focus of the notices to educational opportunities for growers, while still giving adequate recognition to USDA and ODA, proved more successful.

While production of wheat did not fall under this grant, wheat is the alternate crop to specialty crops in the Willamette Valley. Having topics about wheat production along with other specialty crop risk management topics brought more people to the seminars. Not being allowed to use any funds from this grant to pay for the wheat topics was an impediment to well-attended seminars.

**TITLE: ODA-S22 Increasing Consumer Awareness of Oregon Certified Sustainable Wine® – *Final Report (Approved 2/20/2013)***

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## PROJECT SUMMARY

The purpose of the project was to broaden consumer awareness of Oregon Wine Board's (OWB)'s Oregon Certified Sustainable Wine brand initiative by using a variety of means to directly reach consumers and educate them about Oregon's focus on growing and producing sustainable wine. The OCSW program was developed by OWB as a way to drive awareness of Oregon's sustainable winegrowing and winemaking practices. While a logo and other marketing materials had been developed, there had been limited broader outreach to consumers.

Consumer awareness of and preference for sustainable farming practices has been on the rise. Oregon has been seen as a leader in the environmental and sustainable food movement for a number of years. About 38% of Oregon's vineyards are certified sustainable and the number of wineries participating in the OCSW logo program has been growing. But, consumer awareness about the program and its benefits remains low. Oregon's wine industry has been experiencing exponential growth in recent years and its quality scores have never been higher, making this an ideal time to focus on the sustainable aspect of the industry.

## PROJECT APPROACH

There are four basic components to the program – outreach through wine industry media, a broad consumer tasting of Oregon wine, including OCSW wines as part of Oregon Wine Month, redesign of the OWB website to incorporate a broader and more integrated focus on OCSW and the sustainability message and online advertising to drive traffic to the redesigned OWB website and highlight the OCSW messaging.

We successfully conducted two media tours in March and May 2012, both of which had a significant focus on Oregon sustainable wine and winemaking. Both tours were well received and resulted in favorable coverage. The agendas for these events can be found as attachments in the Appendix.

The Oregon wine tasting event was held on April 28, 2012, in Portland. A total of 97 wineries participated in the event, attracting 750 consumers. One of the highlights of the tasting was a focus on Oregon sustainable wines where consumers were able to taste OCSW wines and learn more about the taste characteristics of these wines. It was one of the best-received features of the tasting and was a highlight of the largest wine tasting in the history of the industry.

The redevelopment of the OWB website began in January 2012. The launch date was in October 2012. OCSW will be incorporated in the main OWB website rather than continue as a standalone site. This will add importance and emphasis to the OCSW brand and make it much more accessible and searchable for consumers interested in learning more about Oregon's sustainable wine story. The online promotion campaign is due to begin simultaneously with the launch of the website. The combination of these activities has provided a major lift for Oregon wine and served to highlight its unique qualities, specifically quality. The OCSW brand has been strengthened and brought more into the mainstream of the overall OWB marketing and communications effort.

We had a number of partners in the project who played important roles and without whom we could not have been nearly as successful. Among them were our campaign design and strategy team at Sockeye, a Portland design firm that was responsible for much of the Oregon Wine Month campaign strategy and collateral. The compelling design work helped bring attention to Oregon's sustainable wine story through retail outlets around the state. Solterra Strategies provided strategic consulting services on all of the activities funded by the grant. Travel Oregon's support in helping to promote Oregon Wine Month and Unwine'd was also critical. Several of the state's significant wholesale wine distributors joined OWB in promoting Oregon Wine Month and the Unwine'd tasting with their retail customers, many of whom built eye-catching displays that caught the attention of consumers and helped raise the visibility of Oregon sustainable wine.

We expect our new oregonwine.org website launched in October 2012. In order to highlight Oregon's focus on sustainability, the content from the former OCSW website is being incorporated into the oregonwine.org website in order to provide more focus and make it easier for consumers to locate information. We have purchased an online promotional program with Food & Wine magazine (www.foodandwine.com) that began in November. The purpose of the campaign is to drive Internet traffic to the new website and Oregon's sustainable wine messaging.

## GOALS AND OUTCOMES ACHIEVED

Because our goal was to develop an integrated campaign across a number of marketing and communications activities, putting in place an integrated plan was critical since everything built on the previous activity. In the fall of 2011, we began planning for an integrated approach that would include Oregon Wine Month. Other activities in the plan included sponsoring the largest consumer tasting in the history of the Oregon wine industry, building a new OWB website, using the media to communicate our messages and launching the website in October to coincide with the grape harvest. Timing for the two media tours in advance of Oregon Wine Month was important as it helped us spotlight Oregon wine and our sustainability story before Oregon Wine Month took place.

**EXPECTED MEASURABLE OUTCOMES:**

| Goal | Benchmark | Target | Performance Measure |
|---|---|---|---|
| **Increased media impressions** | <500,000 in 2009 | >3 million in 2012 | Media impressions as tracked by in-house PR tools |
| **Increased online impressions** | None in 2009 | >2 million in 2012 | Online impressions as tracked by hosting websites |
| **Increase visitor traffic to ocsw.org** | 1,000 visitors/month in 2010 | 2,500/visitors per month in 2012 | Website traffic via Google Analytics |
| **Increased enrollment in vineyard certification programs** | 34% of vineyard acreage certified in 2009 | 38% of vineyard acreage certified in 2012 | Certified acreage data from certification agencies |
| **Greater consumer awareness of Oregon's leadership in sustainability** | In 2007, 10% of involved wine consumers selected Oregon as the location which best fit this description: "Vineyards have greatly reduced use of pesticides and other chemicals[1]" | In 2012, >15% will select Oregon in that same question | Consumer awareness tracked by Wine Opinions Panel research commissioned by the OWB bi-annually |

**Goal: Increase media impressions. Target >3 million in 2012.** This goal was achieved. Through our three press tours and media coverage of Oregon Wine Month in May 2012, we easily exceeded the 3 million mark in media impressions. Our overall media impressions have grown steadily over the past year since this campaign began. Overall media impressions during 2012 were estimated at more than 5 million. The number of impressions are estimated based on the circulation and reach of various publications where the news and feature stories appeared as well as social media reach.

**Goal: Increased online impressions. Target >2 million in 2012.** We did not achieve this goal, largely because the work on our website fell behind due to unexpected issues with our web development vendor. The website was not completed and online until late December 2012. We are just beginning to measure the traffic to the new website which is still in a Q&A period. The lesson learned is that this kind of work, especially when dependent on outside vendors, takes longer than is initially anticipated and there is a period of time between the completion of the website and when it begins generating significant increased impressions. Our new website is much stronger in terms of communicating Oregon's sustainability message and we are confident that it will provide an excellent ROI.

**Goal: Increase visitor traffic to ocsw.org. Target: 2,500 visitors per month in 2012**. Our strategy was to incorporate the OCSW website into the main OWB website in order to bring more attention to Oregon's focus on sustainability. While this has been completed, this measureable is still TBD based on the same issues as discussed in the second goal above. We are

highly confident that this goal will be achieved.

**Goal: Increase enrollment in vineyard certification programs. Target: 38% of vineyard acreage certified in 2012.** This goal was met as 38 percent of Oregon's vineyards are certified under one of several certification programs that are part of the OCSW designation, according to the most recent vineyard survey available.

**Goal: Greater consumer awareness of Oregon's leadership in sustainability. Target: In 2012, >15% will select Oregon in answer to the description: "Vineyards have greatly reduced use of pesticides and other chemicals."** Due to staff turnover at OWB, this follow-up survey was not conducted. While we feel confident that our efforts have resulted in the achievement of this goal, the survey has yet to validate our beliefs. OWB no longer works with Wine Opinions to conduct research. So, this is clearly an oversight that was dropped between campaign owners. The lesson learned here is that when grants overlap multiple owners, more attention and care needs to be given to assure that there is a clean handover. There were at least three owners of this project over its lifetime.

These were also important activities in demonstrating to the industry and our key partners that OWB was serious about making a big splash about Oregon wine and tying everything back to the sustainability story. The design and execution of the collateral material to support Oregon Wine Month was another key milestone. Because there had not been an OWB-sponsored wine month in more than two decades, there was a certain skepticism that this would be a serious effort. Promoting the Unwine'd all-Oregon tasting through a variety of means was another key activity. It served as a kick-off for Oregon Wine Month and helped spotlight other activities taking place during the month.

In every instance, we exceeded our expectations. We had a goal of engaging 90 wineries in the Unwine'd tasting and the result was 97; our goal for consumer attendance at Unwine'd was 500 and we had 750 attendees. Our goals for the two media tours were to highlight Oregon's emerging sustainability story among bloggers and freelance writers from outside the state. The coverage to date has exceeded our goals and we continue to see coverage appear from the two tours held last spring (coverage reports attached). While the new website is not finished, it is tracking as expected and will be an incredible asset to tell the Oregon wine brand story once finished in October. (Comps in Appendix) There were a number of intangible benefits as well. Oregon wine is beginning to be perceived as having a new sense of momentum. Overall media coverage has increased dramatically and coverage of the state's quality and sustainability messages are being coupled in a way that did not exist before. The industry itself is starting to believe in the viability of developing a brand message around quality and sustainability. The Oregon sustainable wine story is a very believable and natural story for the state. We have been able to discover and highlight a number of new spokespersons for Oregon's sustainable wine brand that did not exist before this campaign was undertaken.

Because of the nature of the campaign, some of the metrics are more difficult to quantify. In addition, we were not working from reliable baseline metrics. Some of the metrics were difficult to quantify because we did not have accurate insights into the methodology used to establish the baseline statistics, nor how the goals were established. Because the grant was substantially amended in early 2012, some of the metrics became harder to measure based on a significant change in tactics and the issues with measuring. For instance, a large part of the focus of the amended campaign was Oregon Wine Month, which was a direct-to-consumer campaign that included sustainability messaging in all of the collateral. However, the impact of that campaign, while significant, was more difficult to measure. Some of the other issues we encountered are outlined in the goals discussion above. A number of those have been listed above. As a result of the campaigns funded by this grant, OWB has made significant strides to kick-start the overall brand by focusing on the sustainable aspects as a way to engage consumers and tell a unique part of the Oregon industry that is often neglected. OWB has formed a solid base for not only telling the sustainable wine story, but has set in place a foundation via the key activities that were seeded by the grant and will continue even after the grant is exhausted. For instance, Oregon Wine Month and the Unwine'd tasting will not only be continued, but enhanced in 2013. One media tour was conducted in September and another is planned prior to Oregon Wine Month in 2013 to continue the focus to Oregon and its sustainable wine story. The website, when completed, will serve as a major new communications vehicle and help OWB amplify the overall Oregon wine message directly to consumers. From this standpoint, the OCSW grant has developed significant momentum for the industry around specific projects that will continue into the future, but that would not have been possible without this initial funding.

**BENEFICIARIES**

Oregon's 500 wineries and 850 vineyard owners were the major beneficiaries of the campaign that focused on Oregon's sustainable wine message. The campaign served as a focal point for the entire industry to rally around and formed the basis for a continued and more organized set of programs in the future modeled after the work completed under the grant. The campaign also enabled OWB to develop and solidify strong connections with the wine distribution and retail community, which had been somewhat neglected in previous years. Consumers were able to see a new unified face of Oregon wine as they never have before. Rather than a continued fragmentation of the Oregon wine brand, the sustainable wine brand campaign provided a unifying theme that helped consumer to see the Oregon wine brand in a new light.

While the ultimate goal of any branding campaign is to enhance the reputation of the brand and ultimately sell more product, it is too early to make that kind of assessment. While the early signs are certainly encouraging in terms of enhancing the reputation of Oregon wine via its sustainable brand message, time will tell if this message is ultimately embraced by wine consumers in their purchase behaviors.

## LESSONS LEARNED

A major lesson learned by staff is that it's important to start any campaign by educating the grass roots audience. The grant application was amended in 2011 in order to reflect a more multi-dimensional approach to promoting Oregon's sustainable wine message. Prior to the amendment, all of the funds were proposed to be used to purchase online advertising. However that campaign failed to acknowledge that the online campaign was without a fulfillment strategy. By running a multi-dimensional campaign we were able to reach consumers with a more meaningful message and with a multi-channel approach. We also learned that it's important to educate consumers and media in a more hands on way than could be done with online advertising due to the nature of the message which did not lend itself well to short online banner ads with no fulfillment mechanism on the other end. With the completion of the new website, the Food & Wine online campaign will have the fulfillment vehicle it previously lacked.

We also learned that this is a long-term proposition. A burst of online ads may draw immediate attention, but that attention quickly fades. Because of the programs that were developed with the help of the grant, we are able to continue this campaign over multiple years, building on the best practices and knowledge learned in this initial campaign. We also believe that based on the amended projects, we were able to make the grant funds go much further than was originally envisioned. We were able to combine the grant funds with in-kind contributions of staff time and additional OWB budget to get a much bigger result than would ever have been possible with the original projects.

We have a strong roadmap to follow in future years. OWB also was able to solidify its position with its membership based on the ability of the staff to execute a number of big and complex projects. Oregon wine was able to gain a new sense of momentum among consumers and a broader visibility for its key messages of quality and sustainability. These activities also allowed OWB to reach many more members of the industry in more meaningful and valuable ways than was the case before the programs began. Finally, the campaign instilled a winning attitude and a sense of the ability to accomplish difficult goals, giving a new sense of confidence going forward.

While we may not have been perfect on all of our goals and outcomes, we believe that we essentially accomplished a tremendous amount and set the stage to build upon what we started with the help of this ODA grant.

**TITLE: ODA-S23 A Season of Marketing – PNWCTA Expanded Marketing Program –** ***Final Report (Approved 2/20/2013)***

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## PROJECT SUMMARY

The Pacific Northwest Christmas tree industry (the largest producing region in the US) has continued to see stagnate growth in tree sales in recent years, especially in California and the southwest states. California by itself represents nearly half of our sales, however, the market has only grown by a slim one percent.

Planting statistics indicate that many more trees have been planted than the market currently demands. In addition, we are contending with the downturn in the economy and pressure to provide an environmental message. We need to not only address protecting our existing markets but also build and develop new markets. Reasonable stability of the industry is critical to the growers and related business.

## PROJECT APPROACH

Included in this project is a public relations campaign positioning real Christmas trees as the best choice for American families targeting California, New Mexico, Arizona and Nevada. Nuffer Smith Tucker (NST) out of San Diego was awarded the contract to develop target media list for press kit distribution, created and ship press kits, long lead outreach and provide maintenance and development for social media aspect of project.

NST provided media training to Mike Bondi and Luisa Santamaria both of Oregon State University to act as spokespersons on behalf of the PNWCTA. Broadcast television interviews with spokesperson and real trees were coordinated in Arizona, California and Nevada in both English and Spanish with an estimated audience reach of 89,186.

NST drafted articles, coordinated long lead and short lead outreach for both print and online publications reaching an audience of 3,954,766.

Using Twitter (@getrealtrees) 581 followers, and Facebook (LoveRealChristmasTrees) 4,501 likes, NST created dialog with consumers regarding environmental information, when and how to buy real trees and how to care for your real tree. The types of posts that had the largest reach were, direct questions evoking the spirit of the holidays, recycle information and care tips. They also ran Facebook ads and Twitter contests to generate additional coverage.

Press releases were distributed through PR Newswire in English and Spanish focusing on the benefits of a real Christmas tree and 10 reasons to consider real Christmas trees. 300 websites posted the releases with an estimated 26,184,407 impressions.

Total estimated audience reach 30,228,359.

In addition, we redesigned the website to support both Christmas tree buyers and vendors. The new website located at www.nwchristmastrees.org includes individual membership/farm listings, both a wholesale search form and a retail farm/lot search which includes a mapping component, FAQ's, Events, Publications, Blog element and other functions to support various web users. ProWorks from Corvallis was contracted to redesign the website.

**GOALS AND OUTCOMES ACHIEVED**

Through print and online publications targeting families and Hispanic markets trough local newspapers, magazines and news websites we reached an audience of 3,954,766. This was a multi-week outreach in all of our target markets.

With in-market appearances by industry representatives with local news stations in three of our target markets we reached an audience of 89,186. Industry reps were interviewed on camera offering tips for buying a fresh tree, real tree care tips, the environmental benefits of a real tree and statistics for Oregon tree production.

Our social media outreach through Twitter and Facebook reached an audience of 5,082. The dialog with consumers was geared towards environmental information, when and how to buy real trees and how to care for your real tree.

Through wire distribution of press releases we reached 26,184,407.

Our total was 30,228,359 consumers falling short of our goal of 40 million.

**BENEFICIARIES**

This project impacts Oregon's approximately 775 Christmas tree growers as well as Christmas trees growers in neighboring states and Christmas tree retailers within our target areas. The Oregon Christmas tree industry represents production of more than 65,000 acres and farm income in excess of $110 million. At a time when there has been limited market growth this project developed and conducted marketing efforts to maintain and increase market shares.

**LESSONS LEARNED**

The most important lesson we learned was that we can have a meaningful impact on the market with coordinated efforts through grants like this and industry matching funds. We were able to

create a marketing campaign that we can take to any market and implement to help maintain, build and/or develop market shares.

We chose to provide a positive message about real Christmas trees, which included the sustainable nature of real trees while dispelling common misperceptions, this message was well received and welcomed by media and consumers alike. Our on-camera industry spokespersons and social media segments were great additions and ones that we will look at continuing with into the future.

Although we did not meet our goal of reaching 40 million consumers we left a positive impression and our efforts gave us a much needed start that we can continue to access well into the future. Being prepared and utilizing more long lead publications would have certainly helped our exposure. Overall, we are pleased with the results and look forward to building on the programs we were able to start utilizing this grant.

**TITLE: ODA-S24 Pear Promotional Road Show – *Final Report (APPROVED 1/30/12)***

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**PROJECT SUMMARY**

This activity was conducted as a joint project for the Oregon and Washington State Departments of Agriculture and to address the Specialty Crop Block Grant Program priority of enhancing international trade. The purpose of this project was to augment market development and access, as well as provide consumer education regarding the multiple varieties of USA Pears available, origin, ripening, nutritional benefits, and usage in recipes. Getting consumers more familiar with other pear varieties, such as Red Anjou, Starkrimson, Bosc, and Concorde is one of the top goals the Pear Bureau has for the Mexican market. This activity provided the opportunity for much deeper contact with consumers than a typical in-store promotion, and overall this activity helped create the necessary excitement or theater that is lacking in the marketing programs for most fresh produce items to sufficiently engage consumers.

Furthermore, this activity enhanced the current promotional program of in-store promotions, PR, consumer advertising, and consumer communication activities that the Pear Bureau conducts each season in Mexico. The Pear Road Show helped the Pear Bureau make a deeper impact with its core consumers and created greater consumer attachment to the USA Pear brand.

Since March 2009, exports to Mexico were impacted by the 20% retaliatory tariff placed on pears due to the U.S.'s cancelation of the Mexican Pilot Trucking Program. This retaliatory tariff has resulted in an estimated loss of $30 million since its inception (since the completion of the USA Pear Road Show promotions, the trucking program dispute was resolved, and the tariff on pears was removed at the end of October 2011). The Road Show was intended to help motivate consumers to buy NW pears and the retailers and importers to stock larger volumes of NW Pears, in spite of the higher cost due to the tariff, which resulted in higher retail costs for consumers.

This is also a key time for the Pear Bureau to deliver a message that resonates with Mexican consumers. Mexico ranks first in terms of obesity levels for children. There are 32 million adults and 10 million children and teenagers that are overweight and obese, with 5 million adults expected to become diabetic within the next 5 years. The Pear Bureau's consumer activities, including the Road Show, emphasize the importance of a nutritious diet, exercise, and a healthy lifestyle. All of these issues are becoming increasingly important to Mexican consumers, demonstrating the growth opportunities for USA Pears in this market.

The USA Pear Road Show built upon the success of a similar promotion, the US Fresh Fruit Road Show, which was conducted in Mexico from 2006-2009 as a joint activity funded under the

USDA's MAP-GBI program and the Healthy Fruits for Healthy Families promotion, another joint activity funded under the Washington State Block grants. The concept proved to still have a strong resonance among consumers as well as retailers.

**PROJECT APPROACH**

The Pear Bureau conducted a total of 80 promotional days in five major cities throughout Mexico: Mexico City, Guadalajara, Monterrey, Cuernavaca, and Queretaro. The retailers that participated are among the leading retail chains in Mexico: Soriana, Comercial Mexicana, Mega, Wal-Mart, Bodega Aurrera, Merkabastos, Chedraui and Smart.

The activities conducted during Road Show promotional days included sampling, recipe demonstrations, consultations with nutritionists, games for kids, opportunities to win USA Pear incentive items, distribution of informational materials, and appearances by a USA Pear character mascot. All of these activities educated consumers about USA Pear varieties, ripening, and provide usage ideas. From February to May 2011, the Pear Bureau covered 58 stores, 13 events, 4 schools, 4 sport clubs, and 1 museum, reaching 44,835 contacts.

By interacting with consumers before entering the store, the Pear Bureau was able to positively influence their decisions to buy more USA Pears and purchase new varieties. The Pear Road Show also served as an incentive for retailers to increase the volumes and varietal range, improve the location of the pear display, and put USA Pears on ad during the promotional period.

Road Show promotions also took place in conjunction with 2 concerts by a pop music band, Savvy, that the Pear Bureau sponsored – these events provided the opportunity to interact with the teenage demographic that is typically difficult to connect with. Grant funds were not used for entertainment.

**GOALS AND OUTCOMES ACHIEVED**

The Pear Bureau's goals in the Mexican market are to increase volume, varietal mix, and maximize returns to the growers. The USA Pear Road Show augmented the Pear Bureau's core promotional activities and delivered positive results, with performance measure results surpassing all goals set prior to beginning the activity.

**Performance Measures**

Northwest Pear sales during the promotional period

- Goal: Benchmark + 10%
- Result: 60% (Road Show results)

**Benchmark:** Number of boxes sold on the day one week prior to the promotion – 470.8 boxes

**Result:** Number of boxes sold on the day of the promotion, at all outlets and locations for the participating chain (including those outlets that did not participate in the promotion - so, for

example, if the Road show was scheduled for one Soriana store in Guadalajara, then the "Sales During" is the sales for all Soriana stores in Guadalajara on that day) – 751 boxes

Variety exports to Mexico during promotional period

- Goal: Benchmark + 15%
- Result: 3.71% (FPC Report)

**Benchmark**: May 28, 2010 Fresh Pear Committee Crop Report
2009-2010 Fresh Pear Total Exports to Mexico (in boxes): 2,585,134
Less Anjou Exports to Mexico: 2,238,660
=Other Variety Exports to Mexico: 346,474
**Result**: May 27, 2011 Fresh Pear Committee Crop Report
2010-2011 Fresh Pear Total Exports to Mexico (in boxes): 2,235,479
Less Anjou Exports to Mexico: 1,876,127
=Other Variety Exports to Mexico: 359,352
3.71% increase over the previous season

Increase in sales with each retailer during promotional period

- Goal: Benchmark + 50%
- Result: 110% in average (Road Show results)

**Benchmark:** One week before promotion – total 137.5 boxes for 58 stores.
**Result:** Day of promotion – total 289 boxes for 58 stores (see attached table – note that sales also remained high on the day or the second day after the promotion: 60% higher than the benchmark).

Average price per box to Mexico

- Goal: $17.25
- Result: $18.51 (Global Trade Atlas, Feb – May 2011)

% of those consumers who reported that information will influence their purchase behavior positively to buy more pears

- Goal: 32%
- Result: 83% (Road Show results)

% of consumers who eat at least 3 servings of fresh fruit and vegetables a day

- Goal: 37%
- Result: 42% (Road Show results)

% of consumers who became more educated about Northwest pears

- Goal: 38%
- Result: 86% (Road Show results)

% of consumers who consider health and nutrition important purchase decision motivators

- Goal: 40%
- Result: 100% (Wilsa Study and Usage of USA Pears, August 2011)

**BENEFICIARIES**

The over 1,500 pear growers in Oregon and Washington benefited from the USA Pear Road Show promotion, as demonstrated by the average price per box of $18.51 during February – May, which was well above the set goal.

| | **Value (USD)** | **Volume (MT)** |
|---|---|---|
| February 2011 | 4,865,993 | 5,566 |
| March 2011 | 5,868,534 | 6,222 |
| April 2011 | 3,690,566 | 3,828 |
| May 2011 | 3,764,174 | 4,033 |
| **TOTAL** | **18,189,267** | **19,649** |

Source: Global Trade Atlas

The promotion's positive results strengthened relationships with both retailers and consumers as a result of the promotions, which will contribute to future growth opportunities for USA Pears in the Mexican market.

**LESSONS LEARNED**

Overall, the USA Pear Road Show was a very successful promotion and delivered positive results for growers, as well as retailers and consumers. Mexico is the USA Pear industry's number one export market, and the Road Show was a unique and exciting way to connect with consumers, providing them with complete information regarding the characteristics, benefits, nutritional values and usage of Northwest pears. The end result is a more informed and motivated consumer that includes pears as part of a daily diet.

In planning and executing any promotion, especially internationally, it is important to keep in mind external factors that are outside of the control of the project. Therefore, the planning must allow for a degree of flexibility in order to adjust to the market conditions. In this project, the fluctuating exchange rate played a role, contributing to a decrease in the number of promotion days that was originally planned in order to stay under budget. The Mexican Peso – U.S. Dollar exchange rate decreased from 12.5-13 pesos/USD at the time the proposal was submitted until the end of 2010 to around 11.5 in April (a 11.5% depreciation of the US Dollar against the Mexican Peso).

Consíntelos
con Peras USA

Pizza USA

**TITLE: ODA-S25 Developing an Overseas Value Added Market for Pears and Cherries as Dried Natural Snacks – *Final Report (APPROVED 1/30/12)***

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## PROJECT SUMMARY

Fruit production in the Pacific Northwest focuses primarily on fresh product for distribution to retail grocery. Pear and cherry packing houses concentrate almost exclusively on fresh sales with the exception of some Bartlett pears diverted for the cannery market. Cherries have a history of more processor options, with significant volume diverted to maraschino and the frozen food ingredients and a canned cherry market. However, all of these "processor markets" are limited in volume by the ingredient purchasers to maintain relative balance between supply and demand. Thus, tens of millions of pounds of fresh pears and cherries suited for consumption are currently sent for juice or to the landfill to limit supply in the fresh market. There exists an opportunity for this fruit to be sold successfully if dried and packaged and marketed with its competitive attributes. Dried fruit is shelf stable for up to a year, requires no refrigeration, and is an all-natural great tasting treat.

Cranberries and blueberries are creating new demand with dried fruit for snacks as a strategy to cope with increasing supply. A primary challenge marketing a dried fruit product is identifying markets that desire the flavor attributes and accept the value proposition when considering purchasing alternatives.

A 2009 trade mission to India, by Albert Gosiak from Perfectly Ripened Produce, allowed introduction of dried pears and dried cherries to produce buyers with major retail chains. Taste tests and interviews confirmed that Indian consumers value a naturally sweet piece of fruit and place a higher value on all-natural products over processed products. Retailers in India indicated that they were prepared to offer dried pears and cherries as a natural healthy snack and believed that product sampling is the key to quickly establishing a successful brand strategy.

## PROJECT APPROACH

In November of 2010, Mr. Gosiak traveled with a Western United States Agricultural Trade Association (WUSATA) trade mission to India. WUSATA helped to facilitate meetings with importers and retailers in the cities of New Delhi and Bangalore.

Two critical tasks were planned for the trip to India, one to identify potential contractors for the in store sampling contemplated for the grant and to make arrangements with retailers to bring in adequate volumes of product to undertake a successful sampling program.

The first task was successful. While in India, Mr. Gosiak was able to discuss the planned sampling program with a potential contractor that is both experienced with in store sampling in India and willing to create a comprehensive proposal for evaluation of the potential outcomes for the dollars invested.

The second and most important task was unsuccessful. According to Ed Weathers, Sales Manager at Duckwall Fruit Company, the 2010 pear harvest was heavily skewed toward large sized Bosc pears, leaving very few of the sizes preferred for bulk peeling and coring at Muirhead Cannery. To obtain fruit for processing the price required to obtain the fruit was significantly higher than prior years. The higher price point led new retailers to temper their enthusiasm for importation.

While the one-on-one meetings set by WUSATA were well attended, two key contacts, Reliance and Pantaloon, were missed with Mr. Singh from Reliance unavailable during the visit to New Delhi and the trip to Bangalore bypassing Pantaloon headquarters in Mumbai. Failure to meet the representatives from these key retailers is the responsibility of Mr. Gosiak. These key players were expected to attend the meetings, but adequate planning was not done to ensure a their attendance. The failure to connect left Mr. Gosiak with serious concern about the sampling program going forward.

The project required orders by November 2010 to allow for the purchase and processing of pears while they were available. Lacking orders, Perfectly Ripened Produce did not purchase and process the fruit. Given the missed purchase and processing opportunity dependent on the November 2010 critical dates, the planned project timeline was not met.

Original plans for 2011 expected the first in-store sampling of dried fruits during February and March of 2011. Targets were for retailers, primarily Reliance and Pantaloon, to take pallet quantities to begin a significant sampling and introduction of the dried fruit products.

No actual orders were obtained during the trip to India in November of 2010. Follow up with contacts since that time generated no orders beyond small samples of single cases. Because the cost of shipping single cases was prohibitive the decision was made not to move forward with the project.

No grant funds were requested or expended.

**GOALS AND OUTCOMES ACHIEVED**

Because no work was completed toward this project, the goals and outcomes were not achieved.

**BENEFICIARIES**

Because no work was completed toward this project, the potential beneficiaries were not

reached.

**LESSONS LEARNED**

Although this project did not move forward, there were still lessons to be learned.

India remains the largest consumer of dried fruits in the world. The dried pears produced by Perfectly Ripened Produce are an excellent use of off grade fruit and have a wonderful eating quality. The value chain for production is available between Hood River and The Dalles and has opportunities for success. Relationships with a business partner willing to promote the product and capitalization of business risks needs to be addressed again before this type of project could move forward.

**TITLE: ODA-026 KORUS Specialty Crop Trade Servicing – *Final Report (Approved – 02/07/2014)***

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**PROJECT TITLE**: KORUS Specialty Crop Trade Servicing

## PROJECT SUMMARY

South Korea is one of Oregon Agriculture's top trading partners. With the recent passing and implementation of the US-Korea Free Trade Agreement, Oregon Department of Agriculture's Marketing and Development Program saw a prime opportunity to maximize trade opportunities and relationships for specialty crops in the Korean market. Tariff reductions went into effect immediately after the implementation for some crops and value-added products, while others are on a gradual reduction schedule anywhere from 3-15 years.

The state of Oregon's in-market contractor was hired to help in the are of trade-servicing for a wide variety of Oregon Specialty crops. Trade servicing activities included: developing relationships with targeted imports and distributors, tracking trends in Korean food and agriculture industry, engaging with regulatory officials from US and Korean side to better understand rules and regulations for Oregon specialty crop to ease and improve exports to the vibrant Korean market.

## PROJECT APPROACH

The Oregon Department of Agriculture worked with and coached a representative team in South Korea to help further trade relationships between Oregon specialty crop exporters, the Oregon Department of Agriculture's Development and Marketing Program, and Korea's food and agriculture trade and regulatory community. Oregon Department of Agriculture's South Korean team increased market outreach to targeted trade contacts by attending relevant seminars for blueberries, wine and specialty foods. Additional trade servicing efforts included visits to trade shows and making cold calls to stakeholder importers, distributors and retailers in order to increase exposure and knowledge of Oregon specialty crops production and commercial export availability and value. A database of over 100 trade contacts was developed through this work. Several importers visited Oregon for further investigation and to meet with Oregon specialty crop suppliers as a result of this work.

ODA received monthly reports from Korean contractor outlining various market research and trade servicing efforts throughout the contract period with a main objective focused to obtain knowledge about Oregon specialty crops' target audience, both trade and consumer) in the Korean market. It was vital to understand public opinion, buying trends, and impacts of

regulation in order to be successful when competing with similar products and markets eager to gain market share in the growing Korean market. Market research and trade servicing activities included identifying key importers and distributors of US specialty crop products, identifying market share for US products and where US products had a tariff and quality advantage, identifying consumer trends in food and where Oregon specialty crop products were a fit for the market. When Oregon specialty crop suppliers visited Korea, our team set up meetings for them with retailers, importers and distributors and worked with them to understand market and consumer trends pertinent to their product lines. These meetings and market visits were delivered for several Oregon suppliers dealing in dried fruits and nuts, onions, potatoes, processed fruits and vegetables and wine. Oregon's team also participated in two conferences where our Korean representative had the opportunity to speak about Oregon specialty crops' production, distinguishing characteristics and value.

These market research and trade servicing activities helped our team identify targeted promotions and appropriate marketing channels for Oregon specialty crops with retailers, importers and distributors. Retail promotions were executed in large hypermarket stores and department stores for Oregon wine, across home-shopping networks for fresh and processed fruit products, and at targeted trade shows and industry events for a variety of Oregon specialty crop products. Oregon exhibited specialty crop products at Korea's largest food show, Seoul Food and Hotel. Buyer, importer, distributor and retail trade contacts were invited to the booth and additional contacts were made producing about 40 leads for Oregon specialty crop suppliers. This trade show provided an excellent opportunity for ODA's team and Oregon specialty crop suppliers to introduce new products, test market acceptance and identify leads and key market buyers moving forward.

**GOALS AND OUTCOMES ACHIEVED**

Agricultural exports from Oregon to Korea increase over $400 million from 2011 to 2012, and 2013 export statistics are on-track to surpass 2012 exports. Supply the activities that were completed in order to achieve the performance goals and measurable outcomes for the project.

Over a year grant program, specialty crop exports to Korea saw a dramatic increase in both sales and interest from Korean trade importers, distributors and retailers. The primary goal for this project was to increase sales 10% from 2010 export data, equivalent to about $4million USD. This goal was surpassed with almost $5 million in specialty crop exports directly tied to the work from this grant project. Additional sales were achieved by working with Korean government and regulatory authorities to sort out technical issues that blocked market access of Oregon chipping potatoes. Korea is Oregon's third largest market for chipping potatoes.

**BENEFICIARIES**

Oregon's wine industry, processed vegetable industry, and blueberry industry were major beneficiaries from the work conducted with this grant funding. Combined exports from these

specialty crop exports reached over $3.5 million in 2012 alone. Oregon Department of Agriculture's in-market team of Korean representatives proved critical in helping these industries develop and thrive in an ultra-competitive Korean market. Our Korean team set up company meetings for specialty crop representatives in this industry. Some meetings were set up as introductory for initial market entry and development, while others were set up to improve existing relationships and communication channels. Technical education also proved as a valuable exchange between stakeholders to help streamline import processes and regulations with Korean government officials and regulatory agencies.

**LESSONS LEARNED**

The success of this project was evident, but lessons were learned during this grant period. We learned that we need to do a lot more training with our Korean contractor. No budget for training was included in this grant project and would have produced better results. The contractor visited Oregon only once for an orientation to specialty crops, but it really wasn't enough time to learn about so many crops and the diversity of value-added products. We also discovered that more media and promotion work needs to be done in the Korean market to compliment the trade outreach and trade servicing efforts. Korean importers, distributors and retailers will be much more likely to take a risk on a new specialty crop product when they have promotional support to market and educate the Korean consumer about Oregon specialty crops.

An unexpected outcome from the project was a dramatic increase in sales of Oregon potatoes and processed vegetables over a year period. These commodities were not initially targeted, but by increasing our trade outreach and servicing efforts in the market Oregon's reputation of quality specialty crop products produced record sales in both categories. Additionally, our increased outreach efforts with Korean government and regulatory officials proved most beneficial to sort out a technical barrier to the export of Oregon potatoes. The market was able to stay open instead of Korea's regulatory wish to close the market to Oregon potatoes. These combined communication and trade servicing efforts all resulted in increased exports from Oregon specialty crop suppliers.

**TITLE: ODA-027 Certification Programs Expansion to Incorporate Improved Industry Outreach to Specialty Crop Producers - *Final Report* (Approved – 02/07/2014)**

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## PROJECT SUMMARY

As consumer concerns over food safety continue to rise, Oregon farmers and packers are facing increased pressure from retailers to implement food safety programs. The Oregon Department of Agriculture (ODA) Certification Program has been at the forefront in providing USDA GAP/GHP food safety audits since 2002, ranking amongst the top three states in the number of audits conducted each year. Historically, these voluntary audits have been accepted by numerous buyers as proof of compliance with food safety practices and continue to be a requirement for participation in the USDA procurement program. In recent years, however, there has been a strong shift in the retail food supply chain towards GFSI-benchmarked audits as a standard for fulfilling these buyer requirements. In order to meet the needs of specialty crop growers across the state, ODA created a partnership with NCSI Americas in 2011 to provide increased auditing services for GFSI-benchmarked audits such as GlobalGAP and PrimusGFS. With FY2008 funding for the project, "Expansion of Certification Systems to include Internationally Accepted Standards (Global Food Safety Initiative)," ODA began training auditors in these standards.

The first full year of service in 2012 resulted in 39 GFSI-benchmarked audits conducted in seven counties across the state. Common requests from the first customers centered around the need for outreach and education in these GFSI standards, as many growers and packers had grown accustomed to the USDA GAP/GHP audits over the last 10 years and were nervous about the new expectations. The technical information available for first-year applicants from the standard owner websites was intimidating and cumbersome, resulting in general frustration and apprehension amongst participants. Previous efforts to support applicants through the process of achieving USDA GAP/GHP certification resulted in the FY2009 project, "Good Agricultural Practices Outreach and Training Cost," however, these sessions focused on the mechanics of the audit program and less on the finer details related to food safety. With the release of the first two proposed rules of the Food Safety Modernization Act (FSMA) in January 2013, ODA recognized that the buyer requirement for food safety audits would be rapidly growing and that more specialized GFSI trained auditors would be necessary to meet the demands of the industry.

## PROJECT APPROACH

The project received approval in February 2013 and work towards outreach and auditor competency training began, starting with an NCSI Americas auditor calibration session for two

ODA auditors and auditor shadowing for new ODA auditing staff. The Certification Programs Manager and a Certification Specialist presented outreach sessions. The first outreach session was presented in Hermiston in early March. A flyer was created for promotion of the event and the district manager alerted constituents, in addition to an announcement posted on the ODA Certification Program website. There were 28 attendees at this first event representing 25 different organizations (growers, packers, crop advisors, and food safety consultants) and 6 specialty crops (onions, potatoes, watermelons, cantaloupes, apples, and mint). Topics covered included program updates for USDA GAP/GHP followed by case studies specific to GlobalGAP (pesticide storage and MRL testing) and a summary of FSMA progress.

The intention at the onset of the project was to offer outreach sessions in all districts (Hermiston, Hood River, Klamath Falls, Ontario, and Salem); however, little interest was generated in Klamath Falls and Ontario. Conversely, requests for Salem-based grower group presentations resulted in five separate sessions for blueberry and caneberry producers, reaching approximately 140 attendees total. An additional presentation was given in April for 24 Hood River-area growers and packers representing 18 operations in the blueberry and tree fruit industries. Unexpected interest came from the Central Oregon Intergovernmental Council, which contacted ODA to request a general GAP presentation for small farms. Small farm owners attended the April presentation held in Redmond from Terrebonne, Gaston, and Portland producing numerous market vegetables, including leafy greens.

In preparation for the increase in auditing activities, six new USDA GAP/GHP auditors attended a weeklong training in April. From May through June, new auditors shadowed audits and were witnessed conducting audits for the USDA GAP program and GlobalGAP. A USDA GAP/GHP auditor and two auditors trained in GlobalGAP attended a course in Harmonized Produce GAPs in order to provide extended services, as roughly 2% of the applicants required both GFSI and Harmonized audits for their retailers and procurement requirements, respectively. The months of July, August, and September were devoted to providing audits across the state for a total of 103 GFSI-benchmarked audits, 11 Harmonized standard audits, and 243 USDA GAP/GHP audits for the year. It is projected that an additional 15 USDA GAP audits will take place in Klamath Falls in October and November. At the start of the summer, the potato growers were not showing interest in obtaining GFSI-benchmarked certifications, based on the prevailing assumption that potatoes would not be scrutinized under the Food Safety Modernization Act (FSMA). As conversations with FDA evolved, the growers in Klamath Falls that had previously been under USDA GAP certification decided to be certified under the Harmonized standard while an additional 12 growers that had never been involved in a certified food safety program requested USDA GAP audits.

## GOALS AND OUTCOMES ACHIEVED

Attendees at the outreach sessions were asked to complete an anonymous survey to assess how relevant the information was to them and how likely they would be to attend another session with

advanced topics. Additional space was provided for participants to comment on what information they found most useful and what they would like to hear more about in the future. On a scale of 1 to 5, with 1 being "Not Relevant" and 5 being "Highly Relevant" topics to the attendee, 90% scored a 4 or greater for the sessions. On the same scale, but regarding likelihood of attending another session, 87% of participants scored a 4 or higher for the session. More than half of the participants stated that the information on GlobalGAP was the most useful, particularly information about pesticide storages. A few participants stated they would like to have information geared towards smaller farming operations and others commented that the courses were greatly appreciated due to the lack of information that has been available historically.

There was a 2% increase in auditing services overall for a total of 372 food safety audits, largely due to potato producers in Klamath Falls applying for USDA GAP certification. The project goal initially was set at a 15% increase, however, a large grower group in the state opted to apply for certification through a different certification body. The biggest shift in services resulted from blueberry growers switching from USDA GAP/GHP certification to GlobalGAP, PrimusGFS, or Harmonized Produce GAP certification. The shift amounted to a 22% decrease in USDA GAP/GHP audits and a 264% increase in GFSI-benchmarked and Harmonized standard audits provided. As a result of erratic weather patterns, many growers were forced to forgo certification due to loss of crops/markets or the inability to make last-minute arrangements for an audit during a short harvest window. On record, fifteen applicants cancelled audits after submitting applications, in addition to growers that likely did not apply initially due to the harvest constraints.

Auditors were evaluated at the end of the season to assess the number of audits conducted. The goal at the outset of the project was for each auditor to conduct a minimum of 6 audits. Of the 20 active auditors, only 4 auditors did not meet the performance measure, with 3 of these auditors classified as District Managers with additional duties. An observation of the highest performing auditors shows that in some districts, a single auditor is performing 46-85% of the audits for the district. In Ontario District, for example, one auditor performed 39 out of 46 requested audits.

**BENEFICIARIES**

In 2012, the growers pursuing GFSI-benchmarked certifications were producing potato, onion, blueberry, blackberry, melon (watermelon and cantaloupe), and kiwiberry. Additional crops represented in 2013 include row crops (corn, squash), root crops (rutabaga, beets, etc.), leafy greens, and cole crops. Many of the participating producers grow multiple crops and indicated that their other crops may require certification in the future. Based on grower and packer input, interest in GFSI-benchmarked certifications in 2014 may be extended to the cranberry, mint, and hazelnut industries. Due to market demands, farms are not excluded from the food safety certification requirements based on size. Some of the smallest farms certified were less than 4

acres and the largest operations certified over 4,600 acres of crops. A cursory analysis of the applications received for operations that received GFSI-benchmarked audits shows that the amount of acreage certified in 2013 is almost 10 times greater than in 2012 (from 2,042 acres up to over 20,150 acres). The certified crops represent approximately $125 million in revenue for Oregon farmers (based on Oregon Agricultural and Fisheries Statistics 2010-2011).

**LESSONS LEARNED**

Feedback provided by customers during the outreach sessions was generally positive and further supported during the audits, with many participants inquiring about additional trainings in spring of 2014. It is likely that ongoing outreach and training will be required to assist the industry in implementing FSMA requirements and meeting market needs with GFSI standards. Strong demand continues to grow for this kind of training for small farms and more complex operations, such as year-around production, u-pick operations and diversified cropping systems.

The packinghouses were instrumental in coordinating their growers to achieve certification and the season ran smoothly, even with the rapid growth of services requested. However, the amount of growth of services across certification programs was not as high as anticipated. Unexpected interest in USDA Harmonized Produce GAP certification came from the potato growers in Klamath Falls late in the year due to the preliminary discussions surrounding the FSMA and there are still requests coming in for GFSI audits over the winter season from packinghouses. Mostly, a shift in services was seen from USDA services to GFSI services. Additionally, there were some new growers in the Hood River area that did participate in GFSI, but did not utilize NCSI/ODA as their certifier. Additionally, the decline in USDA audits was not anticipated to be as precipitous as it was this year. Now, with a new administrative fee intended to be in effect for 2014, we anticipate further declines in USDA audits that are beyond our control due to increased costs to growers.

**TITLE: Bringing More Oregon Fruits and Vegetables into School Cafeterias Phase III – adding student centered interactive components – *Final Report* (Approved – 02/07/2014)**

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**PROJECT SUMMARY**

Fifty million meals are served to children in Oregon every school year. This means Oregon children are served over 20,000 tons of fruits and vegetables in addition to center of the plate entrees that may contain Oregon specialty crops. The Oregon Department of Education (ODE), the Oregon Department of Agriculture (ODA), the Corvallis Environmental Center (CEC), and a diverse array of public-private partners have been working together to ensure Oregon producers of specialty crops are able to access this growing institutional market through Farm to School programs.

While Farm to School programs are unique to the place and people who run them, they consist of a spectrum of activities that both serve up and celebrate our agricultural bounty. Currently there is tremendous interest in Farm to School programs. The momentum nationally is in large part fueled by the First Lady's "Let's Move" campaign, coordinated efforts to reduce childhood obesity in this generation, and by the recent passage of the 2011 Healthy, Hunger Free Kids Act. This federal legislation will require schools to serve more nutritious meals including those that are lower in sodium and fat, and that have more fruits and vegetables. Furthermore, in 2011, the Oregon State Legislature passed HB 2800, which is a pilot program that will reimburse schools up to 15 cents per meal for serving Oregon agricultural products. This increased focus on improving the school food environment coupled with recently passed federal and state legislation provides a significant opportunity for Oregon specialty crops, particularly fresh and minimally processed fruits and vegetables.

In 2007 there were a handful of Farm to School programs in Oregon. Through coordinated efforts to address barriers to procurement, promotion, and education, the number of Farm to School programs in the state has skyrocketed. As of 2010, we have 90 of the 189 school districts purchasing Oregon foods including specialty crops as well as seafood, beef, poultry, dairy and grains. The most recent 2013 telephone survey conducted by ODE found that there are also 496 school gardens in Oregon in 35% of Oregon's schools. That number is up from 361 a year ago, and up from 200 five years ago. School gardens are an important to ensure students have multiple hands-on exposures to Oregon fruits and vegetables, increase students' familiarity with them, and result in greater consumption of Oregon fruits and vegetables. Since school gardens are not required and take a large amount of community and volunteer support and engagement,

the number of schools gardens is a good proxy to generally measure the stregth of community envolvement in specialty crop production with youth.

A keystone to supporting the expansion of Farm to School activities and the promotion of Oregon fruits and vegetables to school food service, children, and families in Oregon is the Oregon Harvest for Schools toolkit trainings and materials. In 2009, funds were awarded to ODE for Phase I of the Oregon Harvest for Schools toolkit, which was titled "Oregon School-based Fruit and Vegetable Educational Promotion". In May 2012, funds from FY2009 were awarded to ODA for Phase II of the Oregon Harvest for Schools project, which was titled "Bringing More Oregon Fruits and Vegetables into School Cafeterias Phase II- Filling an immediate need to expand."

This project completes Phase III of the Oregon Harvest for Schools Toolkit. Phase III of the Toolkit built on the two prior phases and added new elements to actively engage students in the promotion specialty crops and stimulate discussion about Oregon fruits and vegetables. Phase I of the project was managed by the Oregon Department of Education (ODE). Oregon Department of Agriculture (ODA), was the project manager for Phase II and continued to manage the project in Phase III. ODA partnered with ODE and the Corvallis Environmental Center to develop and disseminate Phase III materials. This project was not funded by another federal or state grant program. Specialty Crop Block Grant Program funds were not be used to replace state funds. State funds are available only for the staff time of the Farm to School Program Manager and Coordinators at the Oregon Department of Agriculture and Education. There are no state funds for development and printing of Oregon Harvest for School toolkit materials. Therefore, Specialty Crop Block Grant Program funds supplemented state funds.

**PROJECT APPROACH**

In addition to creating 8 months of additional toolkit materials (featured items included broccoli, carrots, corn, cranberries, kale, leeks, peaches, and rhubarb), Phase III added the new promotional components of: (1) an "Oregon Harvest for Schools Passport" (attached) where students can use to track the specialty crops they have tried during the year; and (2) stickers that match each Oregon fruit and vegetable featured in the Toolkit and which can be given to students when the fruit or vegetable is being featured in the cafeteria. These "Ask Me About" stickers will identify the student as a consumer of an Oregon fruit or vegetable, and serve to initiate a conversation at home about specific Oregon fruits and vegetables served at school and home. These new components will increase students' level of active engagement with the overall promotion, and further bring the promotion into students' homes.

The significant contributions and role of project partners in the project may be summarized as follows: The **Oregon Department of Agriculture** provided overall project management, completed grant reporting, managed the contractor, reviewed and approved toolkit materials content including copy and graphics, managed evaluation and monitoring progress towards

expected measureable outcomes. The **Corvallis Environmental Center** developed the content, design, and final version of the toolkit materials for each month, which included large format posters for 8 specialty crops and cooresponding family newsletters, sample integrated enrichment activities, and "Ask Me About" stickers, along with an Oregon Harvest for Schools passport. For each specialty crop CEC created a "Know Your Farm" poster template that can be edited to feature and promote a specialty crop farmer at a local or regional level. All final materials were approved by ODA and ODE, with input from a Farm to School advisory group. The **Oregon Department of Education** reviewed and approved toolkit materials content including copy and graphics including review of Spanish translated family newsletters. ODE also posted materials on ODE Child Nutrition Programs website, and has the storage space and mechanism to distribute and track inventory of Oregon Harvest for Schools materials.

## GOALS AND OUTCOMES ACHIEVED

The **goal** of Phase III of this project is to give school foodservice, nonprofits, and other organizations the tools they need to increase the amount of Oregon specialty crops served and promoted, and to ensure students eat them. With completion of this project (Phase III), there are now 24 months of toolkit materials. The additional 8 months of toolkit materials developed in Phase III represent a 30% increase in the Oregon Harvest for Schools materials available for the promotion of Oregon specialty crops. A total of 18 "Know Your Farm" poster templates were created in this phase, 10 more than originally planned. The "Know Your Farm" template has already been used at the local level to promote at least 23 Oregon specialty crop farms. Additionally, new materials ("Ask Me About" stickers and Oregon Harvest for Schools passport) were developed to actively engage students and families and complement the increased use of specialty crops by school foodservice.

The **expected measurable outcome** for Phase III was that there will be an increase in the number of school districts who indicate they are purchasing Oregon fruits and vegetables as measured by a telephone survey. Phase II of this project resulted in 30 districts that participate in the Fresh Fruit and Vegetable Program purchasing Oregon specialty corps. Therefore 30 districts is the **Benchmark** for Phase III of this project. Our **performance measure** for Phase III was a 20% increase in the number of school districts purchasing Oregon specialty crops for a **target** of **6** school districts. To track progress towards the target we proposed to do a telephone survey, but it was not necessary as in October 2013, the USDA released the first ever Farm to School census. From this census, we are able to discern that there was an increase of 21 districts (for a total of 51) that particiapte in the Fresh Fruit and Vegetables program that purchase Oregon fruits and vegeatbles. This equates to a 70% increase from the benchmark.

## BENEFICIARIES

Project partners recieved support from project beneficiaries in implementation of this project. Both ODA and ODE require useage of the Oregon Harvest for Schools toolkit materials when working with stakeholders on a variety of activities. For example, through a Memorandum of

Understanding, ODA has commitments from educators in six counties around the state who host FoodCorps service members to use, to the greatest extent possible, Oregon Harvest for School toolkit materials. Collectively, these six communities where FoodCorps service members are placed are home to over 50,000 students and their families. Additionally, working with FoodCorps National, ODA has inserted the following reporting requirements into the service members weekly America Learns reflection logs, "*What procurement, promotion or educational activities related to Oregon Harvest for Schools did you do this month*?" This requirement will allow ODA to continually track how the FoodCorps service members are implementing the materials.

Another example is that ODE requests grantees of the Oregon Farm to School and School Garden Grant Program (a state funded grant program) utilize Oregon Harvest for Schools toolkits where ever applicable. To date, eleven school districts across the state have received state funds under this grant program (HB 2800 or HB 2649). Based on available data from 19 school districts in Oregon, during the 11-12 school year Oregon schools purchased Oregon-grown specialty crops valued at **$178,857.** Based on preliminary data from 26 school districts in Oregon, during the 12-13 school year Oregon schools purchased Oregon-grown specialty crops valued at **$1,483,314**.

Other specialty crop stakeholders outside the applicant organization further receive direct benefit from this project and support its implementation. For example, another Specialty Crop Block Grant funded project (FY 2011) that seeks to engage institutional partners (health care facilities, business campuses etc.) and encourages large scale purchasing of specialty crops has suggested to participants that they focus on the featured Oregon Harvest for Schools produce items so there is more consistency and coordination in what is being procured and promoted to kids and their families in Oregon. Additionally, CEC created a dropbox folder to more readily share with other institutional partners in Oregon, as well as the Washington State Department of Agriculture Farm to School Program. We will continue to identify ways the Oregon Harvest for Schools materials may be easily adapted to differnent institutions and neighboring states.

**LESSONS LEARNED**

Currently the Oregon Harvest for Schools toolkit contains promotional and educational materials for 24 specialty crops. The toolkit is an excellent and well-used resource for promoting specialty crops to children and families. However, it became apparent that school food service providers needed specific materials that would support the inclusion of Oregon specialty crops in school meals and simultaneously meet USDA guidelines for the National Breakfast and Lunch program. We have also learned that as the demand for featured Oregon specialty crops increases, we need to better identify and connect school-buyers with producers and explore innovative procurement strategies such as forward contracting. Lastly, since this phase created mateirals that more fully engage students, we are aware that to complete the toolkit, we need materials that better leverage the story of the producer to ensure that students and their families have a personal connection to

the featured specialy crops and who grows them so that they are more likely to try and regularly consume them both in and outside of the school environment.

An unexpected outcome of this project is that it has united the Farm to School community across the state.  As a result of the OH4S project, farm to school service providers representing and/or working with school districts throughout Oregon are collaborating more and using the Oregon Harvest for Schools materials to deliver the same message across service areas.

Oregon Harvest for Schools "Ask me about…" sticker that can be used on its own, or in conjunction with the student Oregon Harvest for School Produce Passport.

Oregon Harvest for School Produce Passport

# ATTACHMENTS

# ODA-003 Sampling Critical Control Points Within Nurseries Participating in the Grower Assisted Inspection Program

*Attachment 1*: Full Report

# Analysis of Critical Control Points Within GAIP Nurseries 8/26/11

In the fall of 2010, the Oregon Department of Agriculture received a Specialty Crops Grant to conduct a study within nurseries participating in the Grower Assisted Inspection Program (GAIP). Nurseries participating in the GAIP are required to adopt best management practices (BMP) for critical control points (CCP) where the pathogen *Phytophthora* can be introduced into the nursery: used containers, irrigation water, soil substrate, potting media, and incoming plants. This study focused on used containers, irrigation water, soil substrate, and potting media.

The goal of the study was to determine the presence or absence of *Phytophthora* at these CCP in the GAIP nurseries. Each nursery was then issued an individual report detailing the test results for their nursery. The intent of these reports was to provide feedback on the efficacy of the specific BMP adopted by each nursery for the CCP, such that the nursery could adjust their BMP if needed to improve *Phytophthora* risk mitigation.

This report provides a summary of the findings within all nurseries participating in the study. It also looks at the results compared to specific BMP adopted by the nurseries.

**Sampling strategy**

Samples were collected from the following CCP to determine the presence or absence of *Phytophthora*.

- Irrigation water;
- Potting media; and,
- Used containers.

Samples were collected from these CCP once during the growing season and processed in the laboratory using USDA-approved soil and water baiting techniques for the detection of *Phytophthora*. *Phytophthora* detected were identified to genus level only.

Samples were also collected to determine the presense or absence of *Phytophthora* within each nursery's soil substrate. The following survey and sampling strategy was used: depending upon its size, a specific number of transects were walked within each nursery (Table 1). Locations for transects were chosen randomly by the inspector. Three survey plots were located equidistant along each transect, with one subsample of soil collected per survey plot. The subsamples were combined into one composite sample per transect for testing. The USDA-approved soil baiting technique was used to detect *Phytophthora* within each composite sample.

**Table 1.** The number of transects walked and number of composite soil substrate samples collected within each nursery based on the nursery's size in acres.

| Acres | Number of transects | Number of soil samples |
|---|---|---|
| 0 – 1 | 6 | 6 |
| 1 – 5 | 9 | 9 |
| 5 – 10 | 11 | 11 |
| 10 – 20 | 13 | 13 |
| 20 – 50 | 17 | 17 |
| 50 – 100 | 20 | 20 |
| 100 – 200 | 24 | 24 |
| 200 – 500 | 30 | 30 |
| 500 – 1000 | 36 | 36 |
| 1000+ | 42 | 42 |

**Nursery information**

A total of 13 nursery locations, each with unique BMP for the CCP (Tables 2-4), were surveyed in this study. None of the nurseries listed BMP that were specific for the soil substrate, although several had practices listed for the other CCP that would also affect the *Phytophthora* population in the soil substrate.

**Table 2.** Best management practices adopted by nurseries participating in the study for the irrigation water critical control point.

| Nursery | Well water | River water | Recycle water | Treated water | | Water tested |
|---|---|---|---|---|---|---|
| | | | | Chemical | Biological | |
| XXX386 | ✔ | | | | | |
| XXX136 | ✔ | | ✔ | ✔ | | |
| XXX753 | | ✔ | ✔ | | | ✔ |
| XXX677 | ✔ | ✔ | ✔* | | | ✔ |
| XXX010 | ✔ | | | | | |
| XXX738 | | ✔ | ✔ | ✔ | | |
| XXX488 | ✔ | | | | | |
| XXX749S | | | ✔ | | ✔ | |
| XXX749G | | | ✔ | ✔ | ✔ | |
| XXX749D | ✔ | | ✔ | | | ✔ |
| XXX975 | ✔ | ✔ | | | | ✔ |
| XXX528 | ✔ | ✔ | ✔ | | | ✔ |
| XXX484 | ✔ | ✔ | | ✔ | | |

*Run-off is directed to a non-recirculated pond.

The nurseries in the study covered a wide range of sizes. Three nurseries were 5 acres or smaller in size, five were 10-100 acres in size, four were 100-500 acres in size, and one was >500 acres in size. Most of the nurseries were located in the Willamette Valley, with four in Marion County, three in Washington County, two each in Clackamas and Yamhill counties, and one each in Lane and Linn counties.

**Table 3.** Best management practices adopted by nurseries participating in the study for the potting media critical control point.

| Nursery | Media stored on | | | | Equipment | | Media | | Used media steamed |
|---|---|---|---|---|---|---|---|---|---|
| | Concrete pad | Barrier type | | | Dedicated | Cleaned | Tested | Bagged | |
| | | Gravel | Barb | Plastic | | | | | |
| XXX386 | ✔ | | ✔ | ✔ | | ✔ | ✔ | ✔ | |
| XXX136* | ✔ | | | | | | | | |
| XXX753 | ✔ | | | | ✔ | | | | |
| XXX677 | ✔ | | | | | ✔ | | | |
| XXX010 | | | ✔ | | | | ✔ | | |
| XXX738 | | | | | | ✔ | | ✔ | |
| XXX488 | | ✔ | | | | ✔ | ✔ | | |
| XXX749S | ✔ | | | | ✔ | ✔ | | | |
| XXX749G | | ✔ | | | ✔ | ✔ | ✔ | | |
| XXX749D | | ✔ | | | ✔ | ✔ | ✔ | | |
| XXX975 | ✔ | | | | ✔ | ✔ | | | ✔ |
| XXX528 | ✔ | | | | | ✔ | ✔ | | |
| XXX484 | ✔ | | | | | ✔ | | | |

*Nursery does not re-use used potting media from dead plants.

**Table 4.** Best management practices adopted by nurseries participating in the study for the used containers (pots) critical control point.

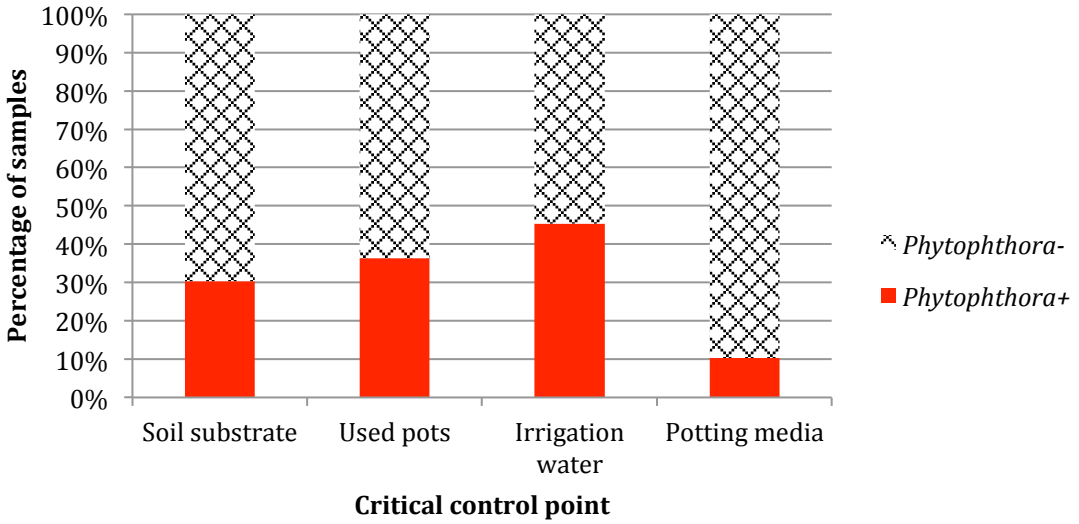
| Nursery | New pots only for HAP* | Used pots | | | |
|---|---|---|---|---|---|
| | | Recycled | Steamed | Sanitized | On non-HAP only |
| XXX386 | | ✔ | ✔ | ✔ | |
| XXX136 | ✔ | | ✔ | ✔ | |
| XXX753 | ✔ | ✔ | | | |
| XXX677 | ✔ | | | | |
| XXX010 | ✔ | | ✔ | | |
| XXX738 | ✔ | | | | |
| XXX488 | ✔ | | | ✔ | |
| XXX749S | ✔ | | ✔ | ✔ | |
| XXX749G | ✔ | | ✔ | ✔ | |
| XXX749D | ✔ | | ✔ | ✔ | |
| XXX975 | ✔ | | | ✔ | |
| XXX528 | ✔ | | | | ✔ |
| XXX484 | ✔ | ✔ | | | |

*HAP is an acronym used by USDA APHIS to mean host and associated host plants of *Phytophthora ramorum*.

**Survey results**

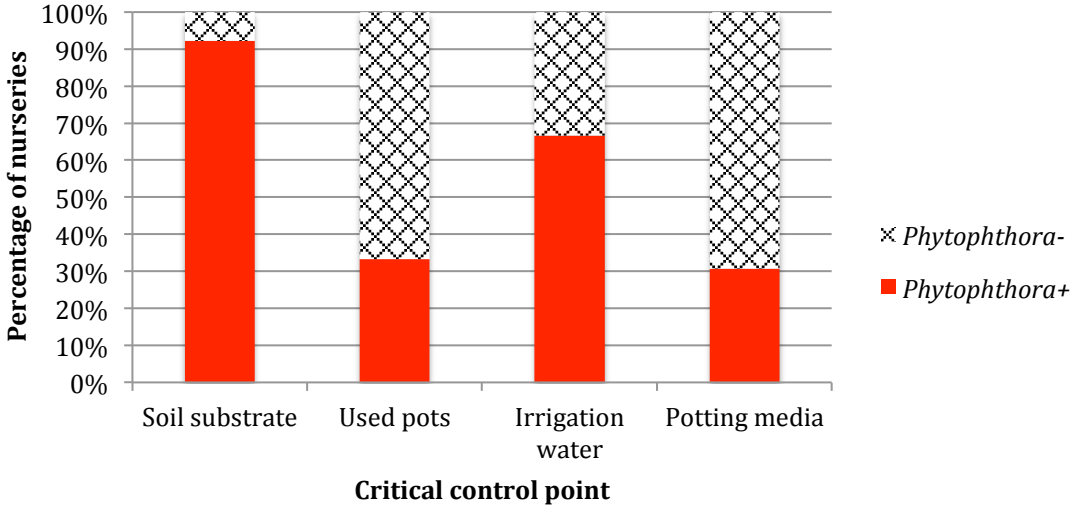
A total of 354 samples were collected from all CCP for this study. About 30.2% of all samples tested were *Phytophthora*-positive. *Phytophthora* was detected from each CCP tested, although it was detected most often in irrigation water based on the percentage of samples testing positive for *Phytophthora* (Figure 1).

**Figure 1.** Percentage of samples collected from GAIP nurseries that tested positive for *Phytophthora* at four critical control points.



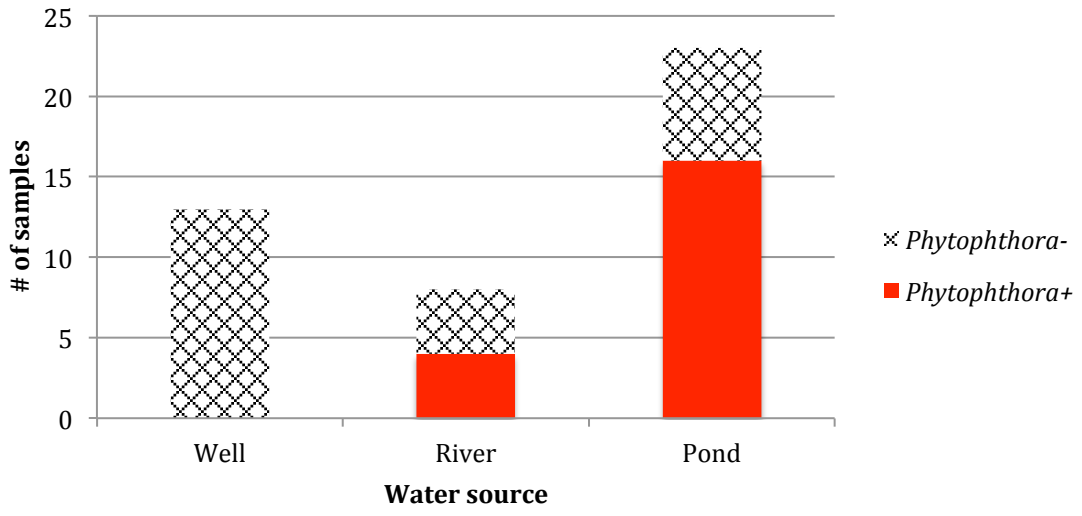

When looking at the number of nurseries with *Phytophthora* present in at least one sample from a CCP, soil substrate and irrigation water were the most likely sources of potential *Phytophthora* contamination, with potting media the least likely source in this study (Figure 2). Only one nursery had no *Phytophthora* detected in any of their soil substrate samples, while nine nurseries had no *Phytophthora* detected in any of their potting media samples.

**Figure 2.** Percentage of nurseries with a *Phytophthora*-positive sample from each critical control point.



A total of 44 water samples were collected for testing, with *Phytophthora* detected in 20 of those samples. When examined by water source, no *Phytophthora* was recovered from samples taken directly from well water (Figure 3). River water and water in recycling or other types of ponds were much more likely to have a *Phytophthora* detection.

**Figure 3.** Number of samples testing *Phytophthora* positive by water source.




The majority of samples collected for testing were from the soil substrate. A total of 260 samples were collected, with 30.4% of all samples testing positive for *Phytophthora* (Figure 4). One small nursery (≤1 acre in size) had no soil substrate samples test positive. With that exception, all nurseries had *Phytophthora* present in the soil substrate along one or more of the transects walked within their nursery.

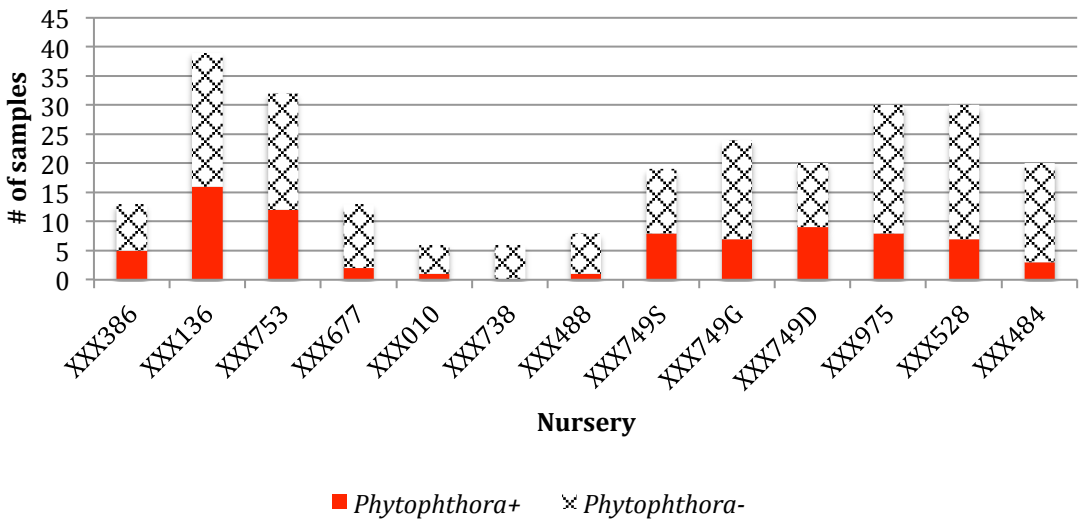
Only 11 samples were collected from used containers. Of these, four were positive for *Phytophthora*. Of the positive samples, *Phytophthora* was detected once after the pots had reportedly been sterilized/sanitized. The remaining positive samples were from untreated pots.

A total of 39 samples were collected from potting media, both individual components and mixtures, at the 13 nurseries. *Phytophthora* was detected in four of the samples. The barrier on which the media was stored appeared to play a role in the presence or absence of *Phytophthora*. In all, one sample collected from media stored on a bark layer only was *Phytophthora*-positive. A sample collected from media stored on a combination bark layer/plastic barrier tested *Phytophthora*-negative. Of eight samples collected from media stored on a gravel/media layer, two were *Phytophthora*-positive. One sample out of 27 collected from media or components stored on a concrete pad tested *Phytophthora*-positive.

**Summary**

The results of this study verify the CCP identified previously by Drs. Jennifer Parke and Nik Grünwald as sources of *Phytophthora* contamination within nurseries; *Phytophthora* was detected in the soil substrate, irrigation water, used pots, and potting media. The results also indicate that certain BMP appear to be more effective at mitigating the risk of *Phytophthora* entering a nursery through a particular CCP than others.

**Figure 4.** Results for soil substrate samples tested for *Phytophthora* by nursery.




No *Phytophthora* was detected in any of the well water samples taken, indicating this is a safe source of irrigation water for nursery stock. In contrast, nurseries that irrigate with river water or water from recycling or another type of pond (pond water) do run the risk of spreading *Phytophthora* to their plants. This is true even if the original source of water was a well; once the water enters a pond, it can become contaminated. We collected the water samples in the winter, when most nurseries depend upon rain to irrigate their plants. Nurseries that chemically or otherwise treat their pond water often don't treat in winter for that very reason. However, when those nurseries begin irrigating from pond water in the summer, the treatments if done properly should mitigate the risk from *Phytophthora*. Nurseries that do not treat their pond water or irrigate from the river run the risk of spreading *Phytophthora* to their plants via contaminated irrigation water.

The best way to minimize the risk of *Phytophthora* spreading within a nursery via irrigation water is to develop a water management plan. There are four key components to such a plan: 1) Use water that is free of *Phytophthora* spores; 2) Avoid prolonged periods of wetness; 3) Apply water uniformly and according to water needs; and, 4) Prevent standing water and encourage drainage to remove excess water from root systems. Options for ensuring water is free of *Phytophthora* spores including using well water, treating with chlorine, treating with ozone, or treating with heat. New research has determined that heat treating water to 42°C (108°F) for 12-hours or 48°C (118°F) for 6-

hours will kill *P. nicotianae* spores (Hao, W., et al, 2011, Phytopathology 101:S69). Extending the time period to 24-hours will kill bacterial pathogens as well. Even if treatment is not possible at your nursery, following the other three steps of the water management plan will reduce the risk of disease. *Phytophthora* is a water-dependent pathogen; managing the environment to minimize excess water will decrease its ability to cause disease.

Soil substrate has been identified before as a source of *Phytophthora* contamination for nurseries. Our study verified those previous results. With one exception, every nursery had *Phytophthora* present along at least one transect. Examples of sources of contamination for soil substrate include contaminated irrigation water, fallen leaves and diseased plants, and plant debris or contaminated soil coming in on vehicle tires or workers' shoes. There are several practices that will help minimize *Phytophthora* population levels in the soil: 1) Remove fallen leaves and diseased plant debris promptly from propagation and production areas; 2) Place pots on raised beds or a >4" gravel layer rather than directly on native soil; 3) Provide adequate drainage to prevent standing water and/or soil saturation; 4) Place your cull pile away from production, propagation, and potting areas; 5) Rotate crops on a particular site between plants that are *Phytophthora*-susceptible and –resistant; and, 6) Destroy diseased plant material or compost it to EPA standards (http://www.epa.gov/osw/conserve/rrr/composting/science.htm).

Although only 11 samples were collected from used containers, over 1/3 of the samples were positive for *Phytophthora*. This verifies previous reports from Parke and Grünwald that used pots were a source of *Phytophthora* in nurseries. The BMP adopted by the nurseries in the GAIP should provide adequate risk mitigation for this CCP. The greatest concern was the detection of *Phytophthora* from a used container after the container had reportedly been steam sterilized. This indicates the time/temperature regimen reached during steam sterilization was inadequate for this particular batch of pots and underscores the need for careful monitoring of time and temperature during the steam sterilization process. Likewise, nurseries using a disinfectant to sanitize pots must follow the label accurately to ensure the treatment is applied effectively.

*Phytophthora* was detected in very few potting media samples. One of the recommendations from the Oregon State University *Phytophthora* online course (http://ecampus.oregonstate.edu/phytophthora) is to ensure native soil (soil substrate) does not mix with potting media or its components. As described previously, soil substrate is a common source of *Phytophthora* contamination in nurseries. Three of the four potting media samples that were positive for *Phytophthora* were stored on barriers other than concrete; one was stored on bark and two others on a gravel/media mixture. One pumice sample stored on concrete was positive for *Phytophthora*. However, the nursery with that positive sample could have contaminated the pumice via dirty equipment. Nurseries that stored media on a concrete pad and used either dedicated equipment for potting or cleaned equipment before potting had no issues with *Phytophthora* in their media.

# ODA-007 Cultivating Agripreneurs

*Attachment 1*: Farmscaping for Beneficials - Class Outline
*Attachment 2*: Farmscaping for Beneficials presentation
*Attachment 3*: Intro to Horticulture - Class Outline
*Attachment 4*: Intro to Horticulture presentation
*Attachment 5*: Soil Fertility and Nutrient Management- Class Outline
*Attachment 6*: Soil Fertility and Nutrient Management presentation

# FARMSCAPING FOR BENEFICIALS – Class Outline

I. Learning Objectives
   a. Understand the concepts and practices of Farmscaping for Beneficials (FSB) and Integrated Pest Management (IPM)
      i. Recognize the importance of understanding the biology and ecology of insects
      ii. Be introduced to the concepts of biological management, functional agricultural biodiversity and seeing the farm as an ecological landscape
      iii. Learn about FSB practices: insectary plantings
   b. Learn about various resources available for FSB and IPM

II. Student Pre-test
   a. What is Integrated Pest Management (IPM)?
   b. What practices are used to do Farmscaping for Beneficials?
   c. Name 3 beneficial insects and describe how they benefit crop growth.
   d. Why is it important to recognize the various life stages of insects?

III. PowerPoint Presentation – see accompanying document

IV. Handouts:
   *a.* "Farmers Banking on Beetles" – www.**sare**.org/content/download/1534/11069/FW06_324_txt.pdf
   b. Farmscaping for Beneficials Resource List – see accompanying document

V. Exercises
   a. Farmscaping your Dream Farm
      i. Have students draw their dream farm and make an FSB design
      ii. Have students share their FSB designs with the class
   b. Farm Walk
      i. As a class, walk around your farm site with hand lenses, one per person
      ii. Identify various insects - both pests and beneficial
      iii. Look for examples of insects in various life stages: eggs, pupa, larvae, adult
      iv. Discuss identification techniques – where and when to look, examination and trapping tools, how to identify
      v. Discuss current insectary plantings, either intentional or unintentional (ex. cover crops or weeds that might provide early-season pollen and nectar, flower hedgerows that help to attract insects and birds as well, etc.)
      vi. Discuss potential insectary plantings that might be of added benefit
      vii. Look for animal life (insect, bird, etc.) and see how it interacts with the plant life

viii. Discuss the farm as an ecological landscape

VI. Final Assessment

As a class, go over the pre-test together using the information gained through the lecture and exercises.

June 2012

# Farmscaping for Beneficials

## By Gwendolyn Ellen

# Farmscaping/IPM Basics

1. Correctly identify pests
   animal, environmental, disease
2. Understand your pest
   what system imbalances contribute to it
   its ecology, biology (when, where, how does it thrive)
3. Decide management options you will use (IPM/CBC/farmscaping)

**What insect pests do you have on your farm?**

**What beneficial insects do you have on your farm?**

# Washington Grape Pests

## Some of The Good Guys

Cutworms → Predacious ground beetles, Parasitoid wasps (bats & birds)

Grape Mealy Bug → Coccinellids, Lacewings, Cryptolaemus/Scymnus, Parasitic wasps-Acerophagus spp, Cecidomyiid flies/predacious midge larvae, Predator mites, Earwigs, Spiders, Minute pirate bug, damsel bug, big eyed bugs

Black Vine Weevil — grubs in soil → Predacious ground beetles, Parasitoid wasps (bats & birds)

Grape Leafhoppers
- W. grape
- VA Creeper

OW in leaf litter → Anagrus wasps, Predacious GB

Spider Mites
- 2-spotted
- McDaniel

Eriophyid Mites
- grape bud
- grape rust

→ Predatory Mites-at least 4 different spp, Six-spotted thrip

**Understand the biology and ecology of predators, parasites and pollinators**

know they interact

**with pests and**

**on-farm habitat**

Have different needs for different life stages: learning these will help you provide what they need to be on farm and aid in pest suppression

Not always a quick fix

Checks and balances

?

**Recognizing different life stages helps you know you have beneficials around**

?

# Parasitic Wasps

Need pollen and nectar sources as adult

parasitoid wasps

# Making mummies

# Predators: True bugs: alternative prey and shelter

## big-eyed bug (2-3mm)

spider mites, flea beetles, thrips, leafhoppers, aphids, corn earworm,

## minute pirate bug

DBA flower bugs- prey on thrips, all stages of spider mites, corn earworm, leafhoppers and other small insects

## predacious stink bugs

prey on small insects, eggs, caterpillars and beetle larvae

can be mass reared

## damsel bugs

aphids, small caterpillars including corn ear worm, imported cabbageworm, army worm, lygus bugs & others

uses toxin to subdue prey

## assassin bugs

ambush prey, attack small flying insects, aphids, leafhoppers & small caterpillars

# Predators:Beetles

Benefit from non-disturbed sites and prey

soil-dwelling generalists, many nocturnal, prey: beetle eggs, snail and slug eggs, caterpillars including diamond back moths, cutworm, cabbage loppers & imported cabbageworm, small larvae and soft-bodied insects

**Predacious ground beetles**

Benefit from pollen and nectar sources and prey

**Soldier beetles**

plant/soil dwelling generalists, small eggs, larvae and soft-bodied insects

**Lady beetles**

**Rove beetles**

Prey upon root maggot eggs and larvae & small insects

# Other predators

**Non-disturbed areas and prey**

spiders

**Pollen & nectar sources and prey**

**mobile generalists, prey ranges from mites and aphis to large moths, flies and beetles**

**common species include crab spiders, jumping spiders and orb weavers.**

**lacewings**

# Adult Lacewing

# FLIES

**both benefit from pollen and nectar sources**

## Parasitoids

tachinid flies

Hosts: moth and butterfly larvae (i.e. cabbage loopers), beetle larvae (i.e. June and elm leaf)

## Predators

hoverflies

# Hoverflies

# The potential dispersal and foraging ranges for the adult stage of different predators and parasitoids

## ~ Short Range

ground spiders

rove beetles

ground beetles

## ~ Middle Range

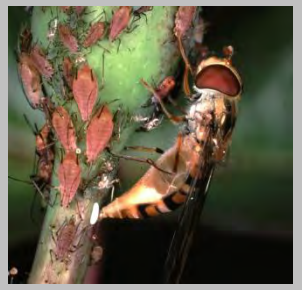
lacewings

parasitoid wasps

predacious bugs

## ~ Long Range

ballooning spiders



hoverflies

ladybird beetles

# Alphabet Soup

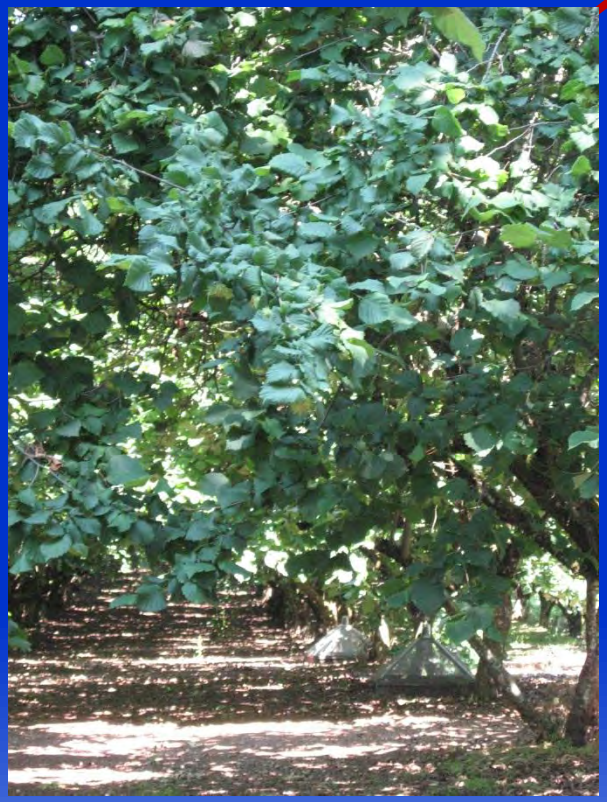
# Integrated Pest Management IPM

**IPM is a broad ecological approach to pest management utilizing a variety of pest control techniques that target the entire pest complex of a crop ecosystem. The formalized concept of IPM has been around for only three decades.**

**Pest management (cultural, biological, resistant varieties, pest occurrence models, pesticides etc.) is coordinated with production practices to achieve economical protection from pest damage (injury) while minimizing hazards to crops, human health, and the environment.**

**Emphasis is on the anticipating and preventing pest problems whenever possible starting with environmentally benign cultural and biological measures and ending with chemical pesticides with direct mode of action. However, pesticides should only be applied if relevant infestation levels or economic thresholds are exceeded.**

# ~~Biological Control~~ Management



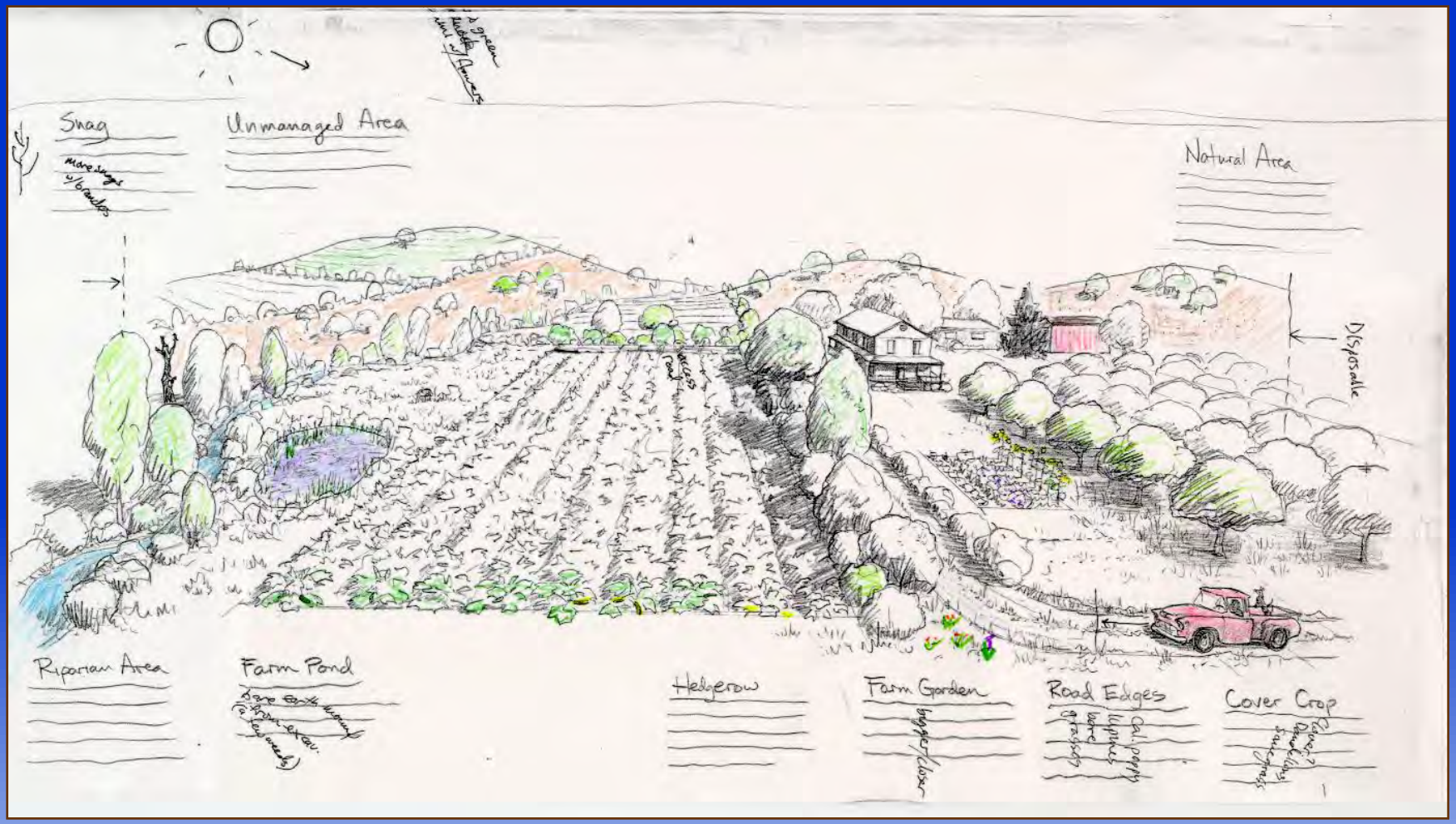
**Classical: augmentative or conservation biological control….**

# Functional Ag Biodiversity

# Why increase biodiversity?

- Mitigates the effects of pesticide drift
- Stabilizes soil erosion
- Decreases dust, weed seed migration, competes with invasive spp.
- Increases water quality
- Increases organic matter in soil which fosters microbial diversity and reduces contamination risks
- Increases  crop pollination
- Provides food and shelter for beneficial insects which can aid in pest management and decrease pesticide use

# Farm as an ecological landscape….




# Areas to enhance biodiversity

# Farmscaping methods: insectary plantings

# Insectary cover crops in Oregon vineyards

Photos compliments of
Rebecca Sweet
Corridor Ag Consulting
corridorag@gmail.com

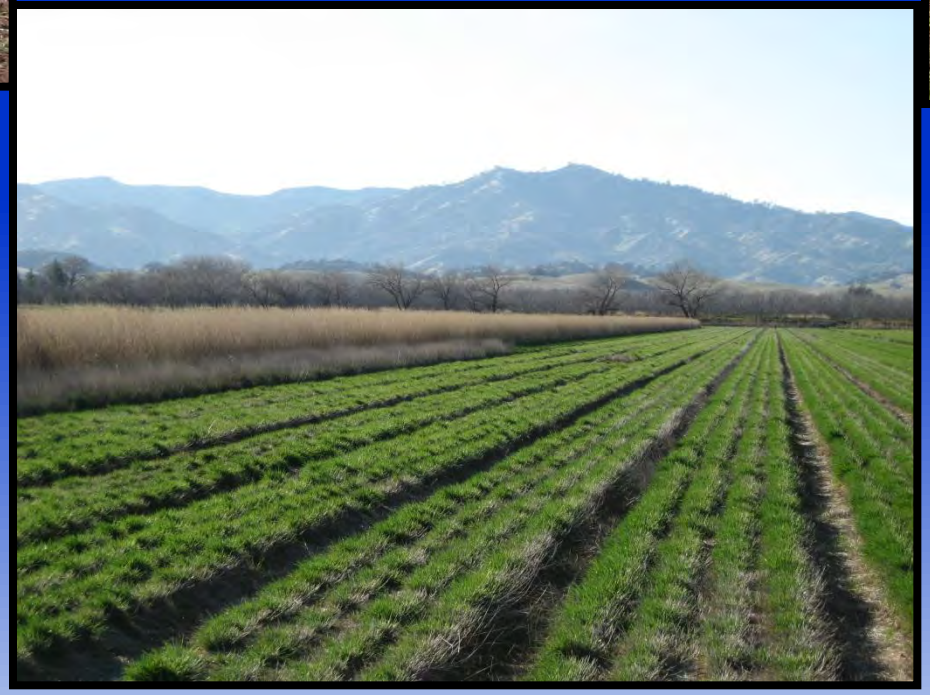
OSU Covers in vineyards and adjacent habitat work: Amy.Dreves@oregonstate.edu

Rye, crimsonclover, camelina, phacelia,CA poppy, alyssum

# Insectary hedgerows limited only by your imagination

# Beetle Banks

In-field, raised beds of native bunch grasses that provide non-disturbed, over-wintering habitat, from which generalist predators disperse in the spring.



# Beetle Bank at Gathering Together Farm

# Beetle Bank at Whistling Duck Farm

Plowing, reverse plowing

Raking

Mulching

Sowing and showing off the bank!

# Insectaries and beetle banks

Bank, seeded 2009 with native and other grasses (Idaho fescue, sheep's fescue, sand dropseed, orchard grass, needle and thread and basin wild rye)

Insectaries include flax, poppy, alfalfa, buckwheat.

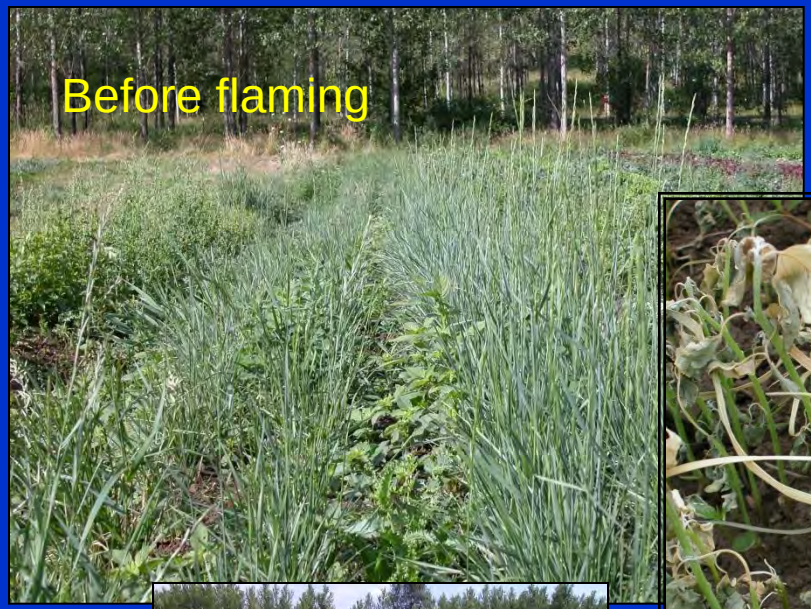
# Largest challenges: adequate site preparation & weed management

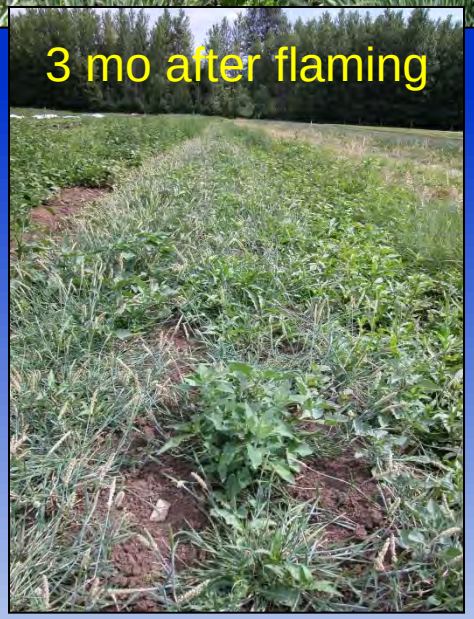
Cover cropping

Mulching

Mowing

# Weed Management: Flaming



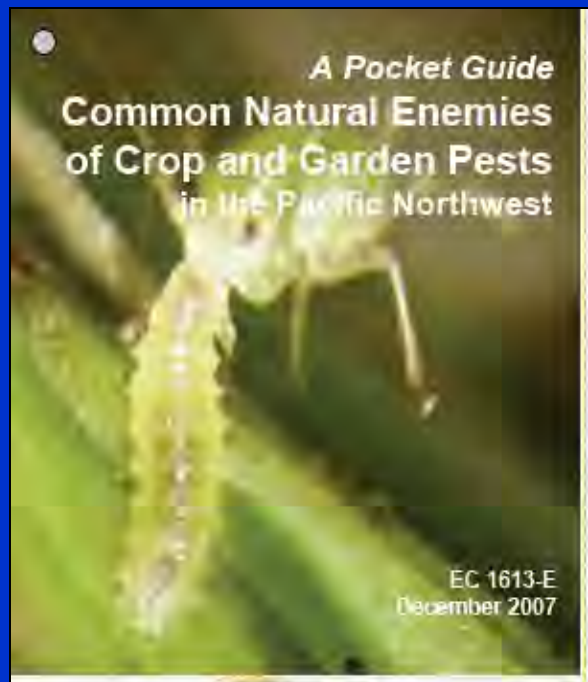


# FSB Project Upcoming Events:

## NRCS, Plant Materials Center Field Days and Winter Classes
## Farm Walks: July and August in Mid-Valley

# Biodiversity Working for Farmers Tours

**2009 Willamette Valley, 2010 WA Columbia Basin, 2011 SE Idaho, 2012 Milton-Freewater, OR**



*A Pocket Guide*

# Common Natural Enemies of Crop and Garden Pests in the Pacific Northwest

EC 1613-E
December 2007

## Using this Guide

The cards in this guide are designed to help you quickly learn the main groups of natural enemies of crop and garden pests, their predacious activity, and tips for observing them. Photographs are of the most common species in the Pacific Northwest.

Use this guide as a field supplement to other publications that provide more detail on how to scout for and manage specific pests and natural enemies.

Print each sheet on regular paper or cardstock. Then fold on the central horizontal line and cut on the dotted orange lines to create three 2-sided cards. (Laminate if needed.)

Most of the photographs in this pocket guide are from the Ken Gray collection.

All other photographs are from the author.



## Biological Control

Determine the relative populations of pests and natural enemies with preliminary monitoring. Then use the following tactics to enhance biological control as part of an IPM program.

- Protect natural enemies from disturbances such as pesticides, other management practices, their own natural enemies (e.g., ants), or adverse environmental conditions.
- Provide supplementary nectar or pollen sources, alternate hosts, or shelter.
- Manipulate the behaviors of natural enemies with attractants or with plant structure and arrangement.
- Augment natural enemy populations with mass releases of lab-reared individuals.
- Introduce natural enemies that are absent from the area.



## General Observation Tips

- When doing visual counts, also inspect the undersides of leaves.
- Approach fast-moving insects slowly, or use nets, beating trays, and traps to get a closer look.

## Distinguishing Natural Enemies from Plant Pests in General

- Observe the specimen to see whether it feeds on animals or plants.
- To see whether a particular natural enemy attacks a target pest species, place individuals of both species together in an enclosed environment that allows them room to move.



## Lady Beetles

(Coleoptera: Coccinellidae)

### Identification

Adults orange to red with black spots, or mostly black; larvae longer; eggs in clusters.

*Adalia bipunctata*

1/8 –1/2"

*Coccinella novemnotata*

*Olla abdominalis*

*Hippodamia convergens*

### Observation tips

All stages found on plants.

### Predacious activity

Adults and larvae prey on aphids, scale insects, mites, and other small insects.

**Similar beetles**

Chrysomelid beetles



## Green and Brown Lacewings

(Neuroptera: Chrysopidae and Hemerobiidae)

### Identification

Light green or brown, large wings, long antennae; larvae flat with long mouthparts; eggs on stalks.

Green lacewings, e.g., *Chrysopa californica*

### Observation tips

Adults often seen flying or on plants; eggs and larvae on plants.

Brown lacewings, e.g., *Hemerobius spp.*

### Predacious activity

Larvae and adults mostly prey on aphids, mealybugs, and other small insects.

1/2 –3/4"

# TECHNICAL NOTES

U. S. DEPT. OF AGRICULTURE
Portland, Oregon

NATURAL RESOURCES CONSERVATION SERVICE
March 2008

PLANT MATERIALS No. 13

## PLANTS FOR POLLINATORS IN OREGON

**Kathy Pendergrass, Plant Materials Specialist, NRCS, Portland, Oregon**
**Mace Vaughan, Conservation Director, Xerces Society, Portland, Oregon**
**Joe Williams, Manager, NRCS, Plant Materials Center, Corvallis, Oregon**

Left – honey bee on camas flower (Pendergrass)

Right – bumble bee on rabbit brush (Vaughan)

**Tables of plants suited to the different growing regions and climates of the state**

**Gwendolyn Ellen**
**Farmscaping for Beneficials Project**
**Integrated Plant Protection Center**
**Oregon State University**
**Email: gwendolyn@science.oregonstate.edu**
**541-737-6272**

# www.ipmnet.org

# Beetle Banks and Grasses

**Preferred characteristics: quick establishment, good winter cover with matted crowns, non- invasive, long-lived.**

| Common Name | Latin Name | Seeding Rate | Properties |
|---|---|---|---|
| Water foxtail (non-native Poa) | Alopecurus geniculatus | 15-30 #/A | Takes standing water, some drought, short plant (1-2 ft) barley-like compact head, creates lots of organic matter on crowns. Needs full sun. |
| California oatgrass | Danthonia californica | 15-30 #/A or plugs | Likes moist soil. Makes very good matted crowns in 2nd -3rd year-1st year growth sparse. **Very difficult to establish.** Has double dormancy Is a major component of upland and coastal prairies. Best to start as plug. |
| Blue wild rye | Elymus glaucus | 15-30 #/A Or 90-120 plants/sq/ft | Grows fast, establishes well, 6' tall, stems upright, large crowns, shade tolerant. Upland prairies and well-drained lowland sites. |
| Slender wild rye Slender wheatgrass | Elymus trachycaulus | 15-30#/A Or 90-120 plants/sq ft | Can tolerate summer draught, establishes quickly, forms good mats needs full sun. Upland prairie plant good to mix with longer-lived plants. |
| California fescue | Festuca californica | 15-30#/A Or 90-120 plants/sq ft | Upland prairie. Deep rooted plant good for erosion control. Attracts birds and butterflies. Long-lived, tolerates partial sun, moist soils and drought,. |
| Roemers fescue | Festuca roemeri | 15 – 30 #/A or plugs | Makes nice matted crowns, not long-lived. Prone to rust and slow to establish. Slight dormancy (cold stress) Found in hillsides and sunny areas of Oak Savannah. Cool season grass. |
| Meadow barley | Hordeum brachyantherum | 15-30#/A Or 90-120 plants/sg ft | Salt tolerant grows in moist and dry soils. Needs full sun. |
| Prairie Junegrass | Koeleria macrantha | 15-30#/A Or plugs | Likes disturbed, droughty sites. Very fire-resistant, responds to irrigation well, slow to establish, 4-5 year life |

# INTRO TO HORTICULTURE – Class Outline

I. Learning Objectives
   a. To introduce the pursuit of horticulture
   b. To understand the factors that affect plant growth

II. Student Pre-test
   a. Name 4 things that plants need to grow.
      i. Light, water, temperature, soil
   b. What does the “N-P-K” value refer to?
      i. Percentage by weight of nitrogen, phosphorus and potassium
   c. How can plant classifications be useful to us?
   d. What are some of the main practices in plant cultivation?
   e. What are some characteristics of sustainable farming?

III. PowerPoint Presentation – see accompanying document

IV. Handout:
   a. Print-out of the PowerPoint presentation

V. Exercises
   a. Name the Plant Families
      i. List the plant family names one by one on the chalkboard
      ii. Have the students guess what common crops are in that family

   b. Visit the Propagation House
      i. Go to your propagation house (or propagation area)
      ii. Introduce the various materials and activities conducted there
         1. soil and amendments
         2. trays
         3. seeds
         4. water
         5. light source
         6. air circulation
      iii. Discuss the various factors that affect plant growth , as they are experienced in the prop-house setting
         1. light
         2. temperature
         3. water
         4. soil
         5. wind & weather
         6. biotic factors

VI. Final Assessment

As a class, go over the pre-test together using the information gained through the lecture and exercises.

# Intro to Horticulture

Growing Agripreneurs

Rogue Farm Corps

April, 19th 2012

# OVERVIEW

- Basic Principles
- Practices
- Growth Factors
- Nutrition
- Propagation
- Classification

# What is HORTICULTURE?

- The science and art of growing fruits, vegetables, flowers, or ornamental plants

  Merriam –Webster

- The science, art, technology and business involved in intensive plant cultivation for human use

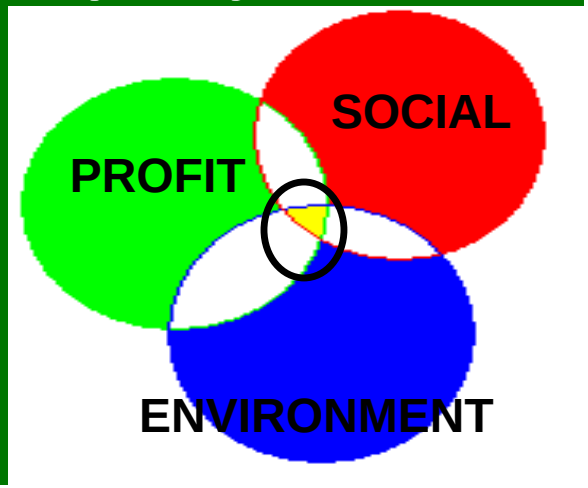
  Wikipedia

*BASIC PRINCIPLES*

# What is SUSTAINABLE FARMING?

- The production of a crop using plant or animal residues and/or by-products or natural minerals and rocks.
  - Organic Fertilizers & Organic Pesticides

- Maintain the integrity of the land and environment.
- Focus on management and inputs, not just yield
- Profitability
- Social Aspect



# Components of HOLISTIC FARM MANAGEMENT

- Biodiversity
- Crop Rotation / Cover Cropping
- Attention to Water and Mineral Cycles
- Mixed Land Use
- Soil Health / Biology
- Energy Use
- Community Dynamics

# CURRENT AMERICAN FARM TRENDS

- Fewer farms, Increasing size, Industrialization
- Farm populations and rural prosperity continue to decline
- Majority of annual row crops are corn, wheat and soybeans
- Fewer alternatives for growers
- Opportunities for niche markets

# EMERGING TRENDS

- Precision Agriculture
  - Appropriate Technology vs. Technology Treadmill
- GMO's
- Sustainability
- IPM

# THREATS TO SUSTAINABLE AGRICULTURE

- Loss of Genetic Diversity
- Big Corporate Monopolies
- Governments
- Degradation of Soils
- Climate Fluctuations
- Labor

*BASIC PRINCIPLES*

# PRODUCTION SYSTEMS

- **SCALE**
  - Available Land
  - Workforce
  - Market Size

- **MARKETS/NICHE**
  - Wholesale
  - Direct
  - CSA
  - Farm Stand

- **AVAILABLE CAPITAL**
  - Infrastructure
  - Equipment
  - Permits

- **PRODUCTS**
  - Climate/Region
  - Soil / Water Quality
  - Market Demand
  - Management
  - Uses

# HORTICULTURAL PRACTICES

- Soil Preparation
  - Tilling, cover cropping, composting
- Seeding and Transplanting
  - Direct Seed, transplanting
- Weed Control
  - Depends on field set-up, irrigation, equipment
  - Mulches
- Irrigation
  - Drip, Overhead, Flood
- Fertilizing
  - Pre-planting, side dress, foliar
- Pruning / Staking / Trellisin

# Intercropping

- Benefits
  - Complimentary canopy
  - Different Roots
  - Timing of Demands
  - Reduce Weeds
  - Transfer of Nitrogen
  - Insects & Microflora
- Challenges
  - crowding or competition
  - Harvest timing & soil disturbance
  - Differing water needs

<u>Relay / Straight</u>

Mixed (pasture)

Row

Strip

Permaculture

Multi Tier

*PRACTICES*

# Crop Management for Optimum Yield

- Crop Type
- Location
- Planting Date
- Density
- Intercropping
- Irrigation
- Fertilization
- Weed/Pest/Disease Management
- Soil Health - Tillage/Crop Rotation
- (Animals)

*GROWTH FACTORS*

# Factors that affect plant growth

- LIGHT
- TEMPERATURE
- WATER
- AIR

# Factors that affect plant growth (cont'd)

- SOIL
- WIND / WEATHE
- BIOTIC FACTOR

  - Insect pests
  - Bacteria
  - Fungi
  - Nematodes
  - Viruses
  - Weeds
  - Domestic and wild animals

BACKGROUND:

# PLANT METABOLISM

- **Photosynthesis:**

  Turns Solar Radiation into Chemical Energy

  – Requires $CO_2$ and $H_2O$ (+minerals); Creates $O_2$

  – Maximize light energy captured by plant

- **Respiration:**

  Occurs in gradual steps to provide energy to cells; occurs in light or dark

  – O2 limiting factor –anaerobic (ex. flooding, fermentation)

- Sinks (Fruit to Seed) & Sources (leaves)

# LIGHT

- LAI (leaf area index/soil unit)
- DENSITY (competition)
- PHOTOPERIOD RESPONSE
- INTENSITY

**LIGHT INTENSITY**

Topography, Time of Day, Season, Cover

- QUANTITY (saturation)
- QUALITY (radiation)
- DARK PERIODS

Crop Growth Rate

How much? (Intensity)

Interception?

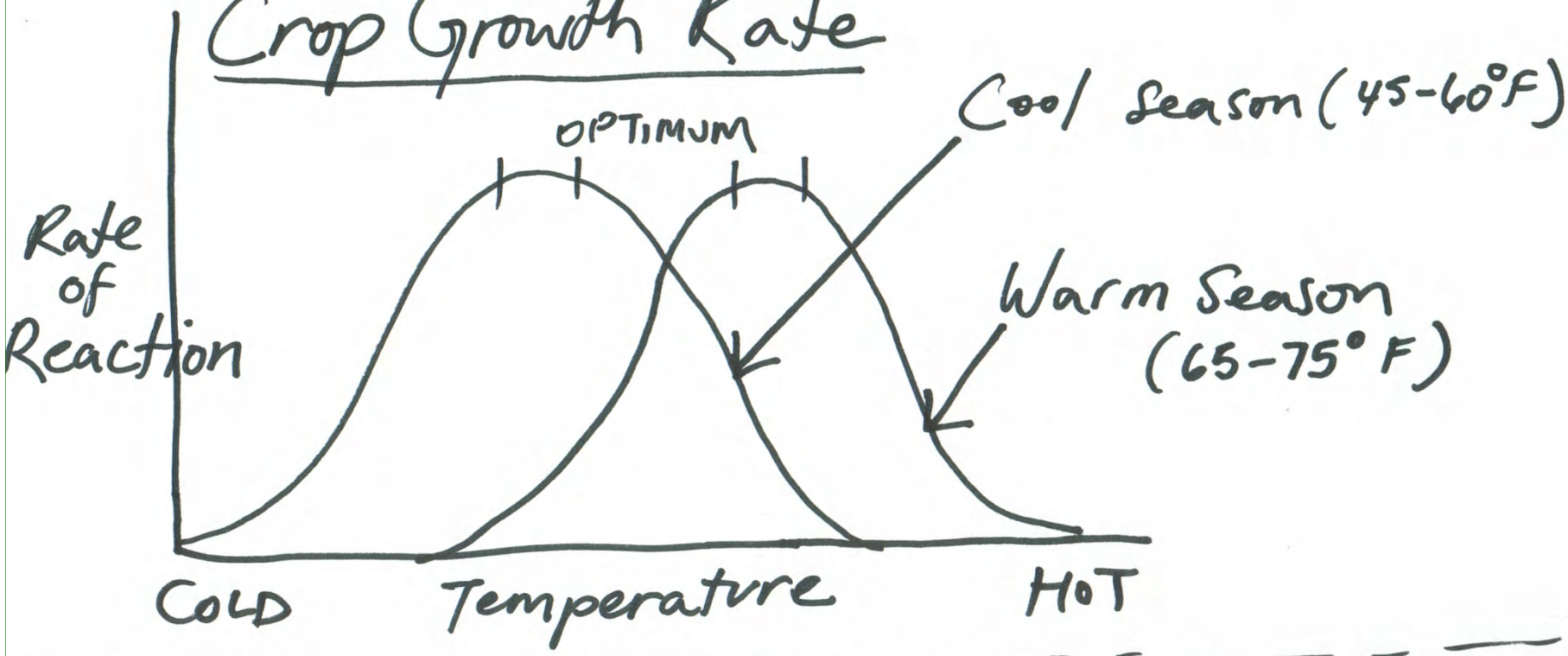
Efficiency?

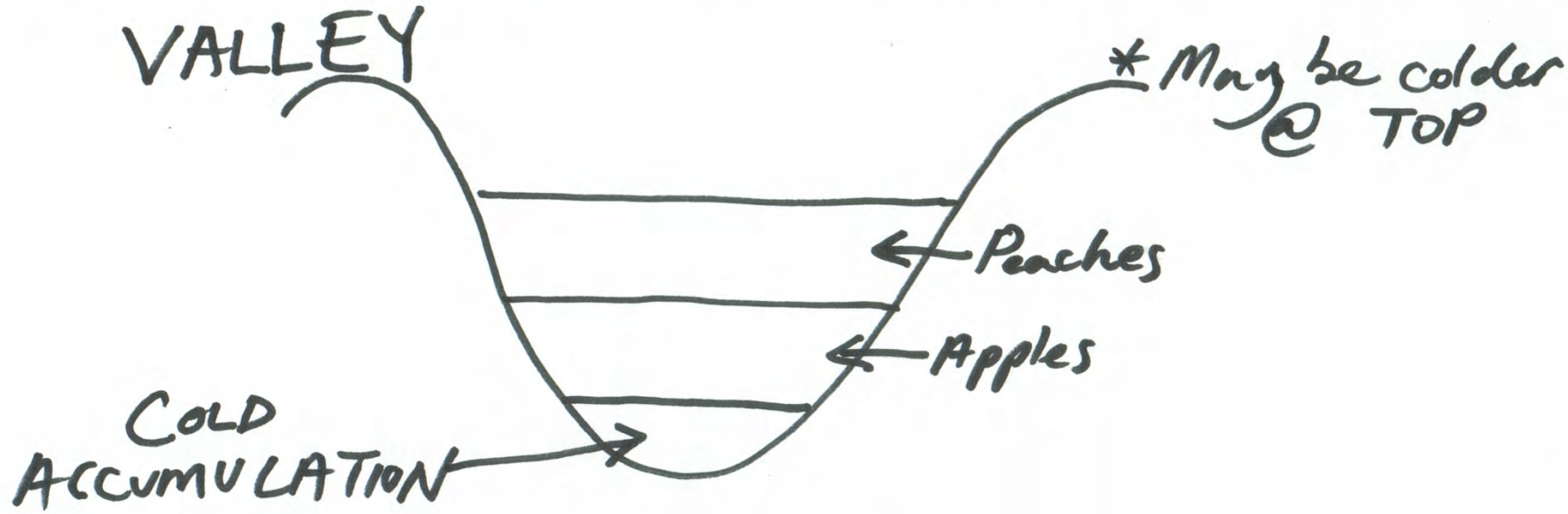
# TEMPERATURE

- Contols rate of photosynthesis and respiration
- Thermoperiodism – temp. change day-night
- Growing Degree Days –requirement by crop
- Vernalization (ex.bud break, seed germ)
- Hardening
- Extreme Heat / Freezing

Bud break

# Crop Growth Rate



*GROWTH FACTORS*

# WATER

- Regulate Plant Processes
- Uptake depends on soil
  (equilibrium = stop)
- Irrigation delays Maturity
- Critical Times
  -flowering, fruit set
  -seed set, ripening
- Transpiration
  - Solar radiation
  - Air Temperature
  - Wind Speed

**WATER UPTAKE IN PLANTS**

<u>Root Factors:</u>

Size

Permeability (new vs old)

Extension

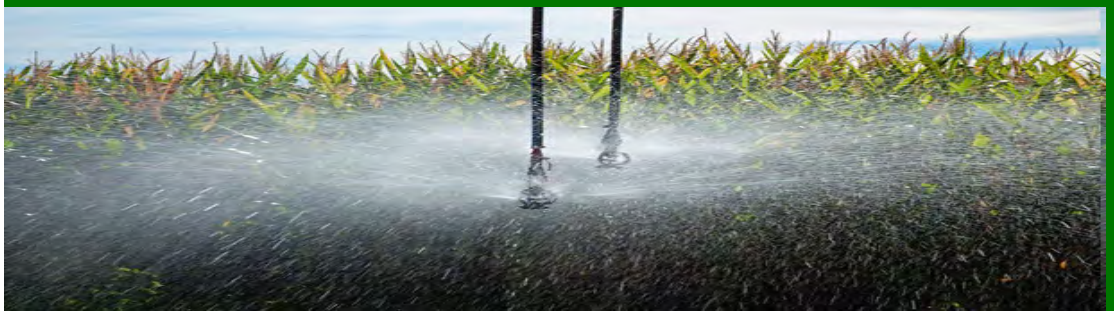
Resistance

<u>Plant Factors:</u>

Height (wind)

Cuticle (waxy, hairs)

Color (dark absorbs heat)



# AIR

- Air quality
- $CO_2$

Sulfur dioxide injury to raspberry leaves

# SOIL

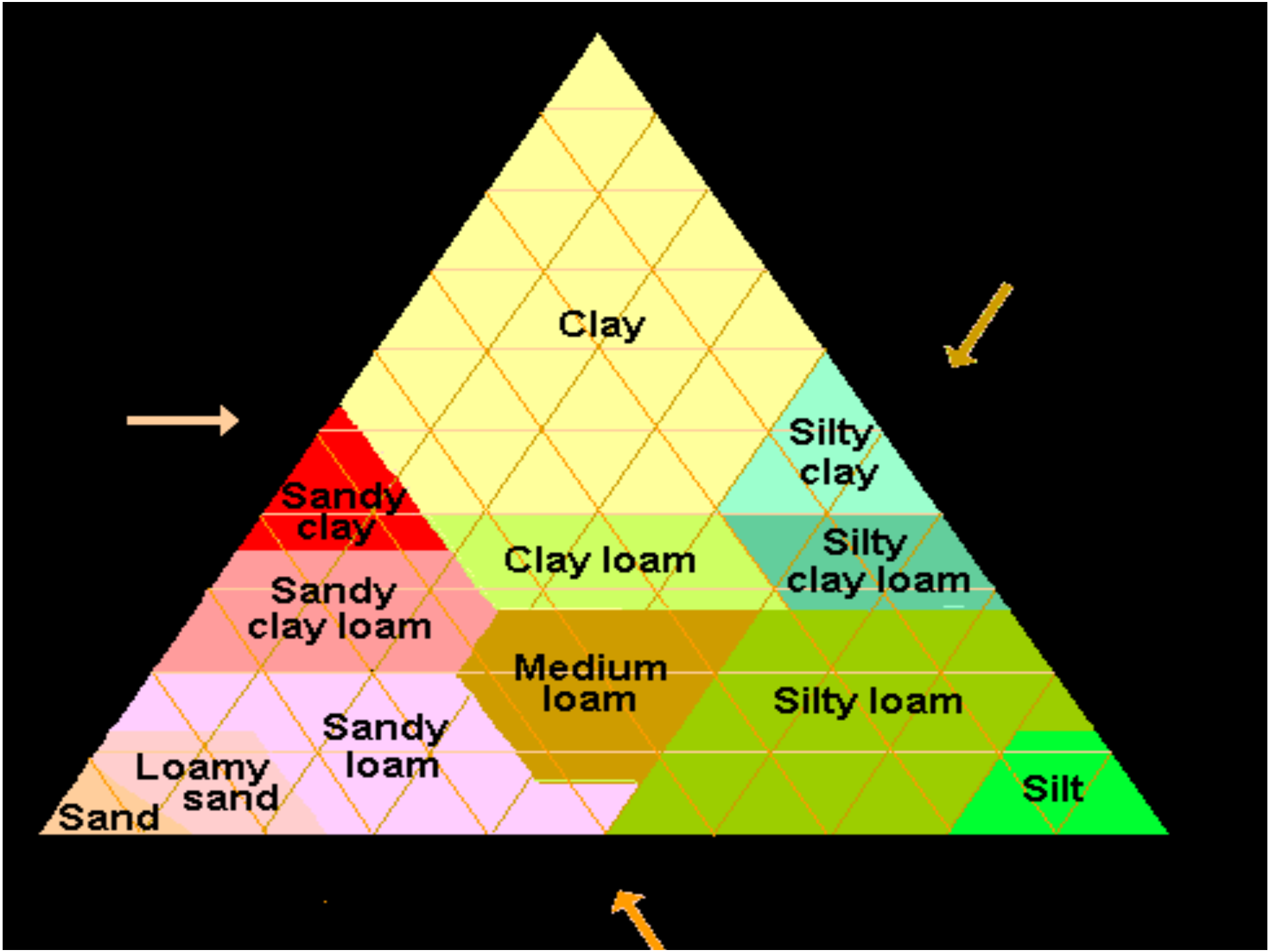
**Soil Fertility:** *The capacity of the soil to support plant growth*

## Factors

- **Physical**
- **Chemical**
- **Biological**

# SOIL: Physical Properties

- Aeration
- Water Holding
- Depth
- Drainage
- Structure
- Texture


Clay
Silty clay
Sandy clay
Clay loam
Silty clay loam
Sandy clay loam
Medium loam
Silty loam
Sandy loam
Loamy sand
Sand
Silt

# SOIL: Chemical Properties

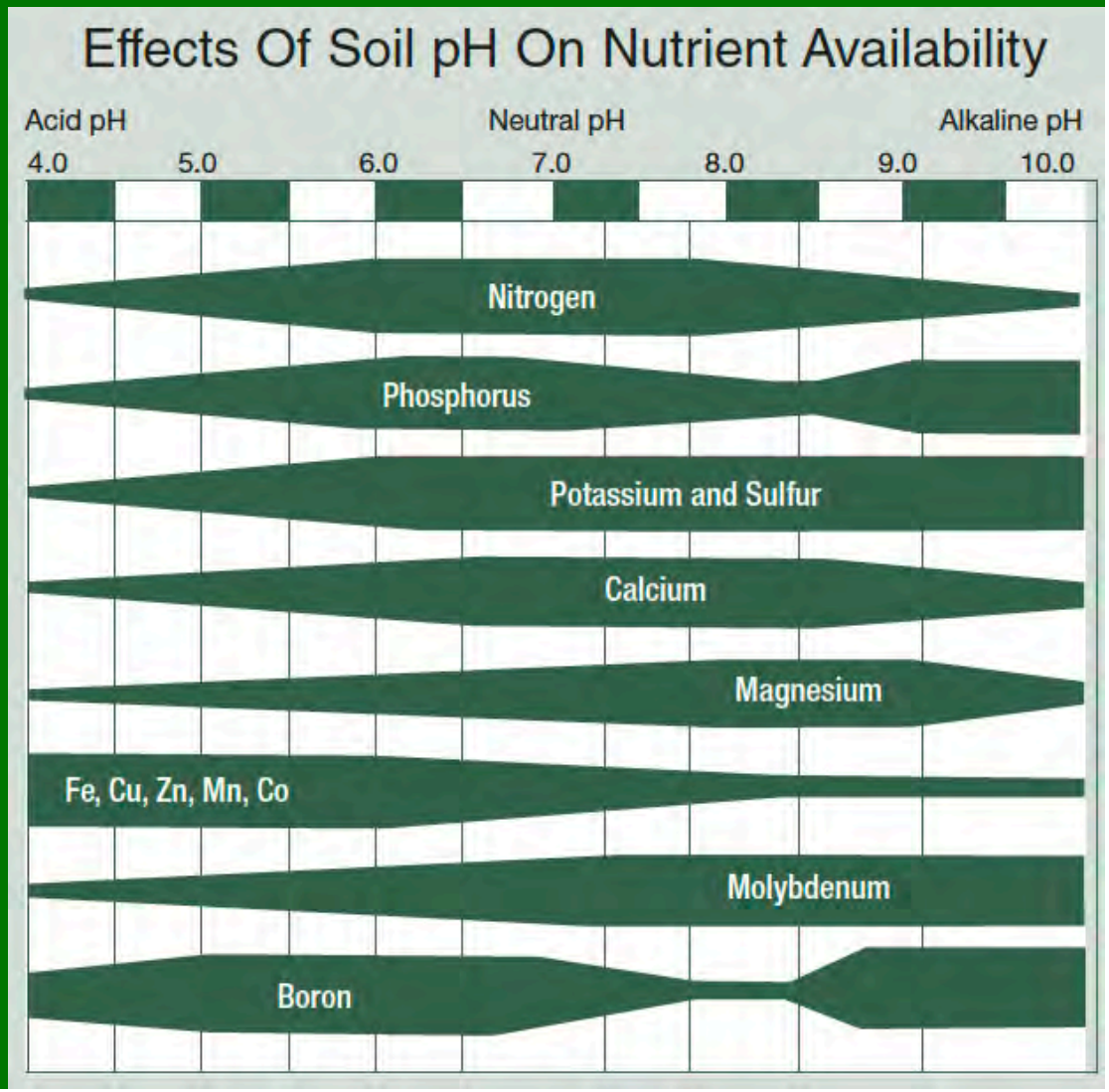
- pH/acidity
- Nutrients

# SOIL: What is pH?

- pH- measure of amount of alkalinity or acidity in soil
- pH scale
  - 1 to 14
  - 1 is extremely acidic
  - 14 is extremely alkaline
  - 7 is neutral

# SOIL: pH for plants

- pH affects the availability of nutrients to plants
- Most crops grow best pH 4 (acidic) – 7 (basic)
  - Grasses 5-7
  - Legumes 6-7
  - Blueberry 4.5
  - Cabbage, Pepper & Beets don't like acid soil



# SOIL: How is pH modified?

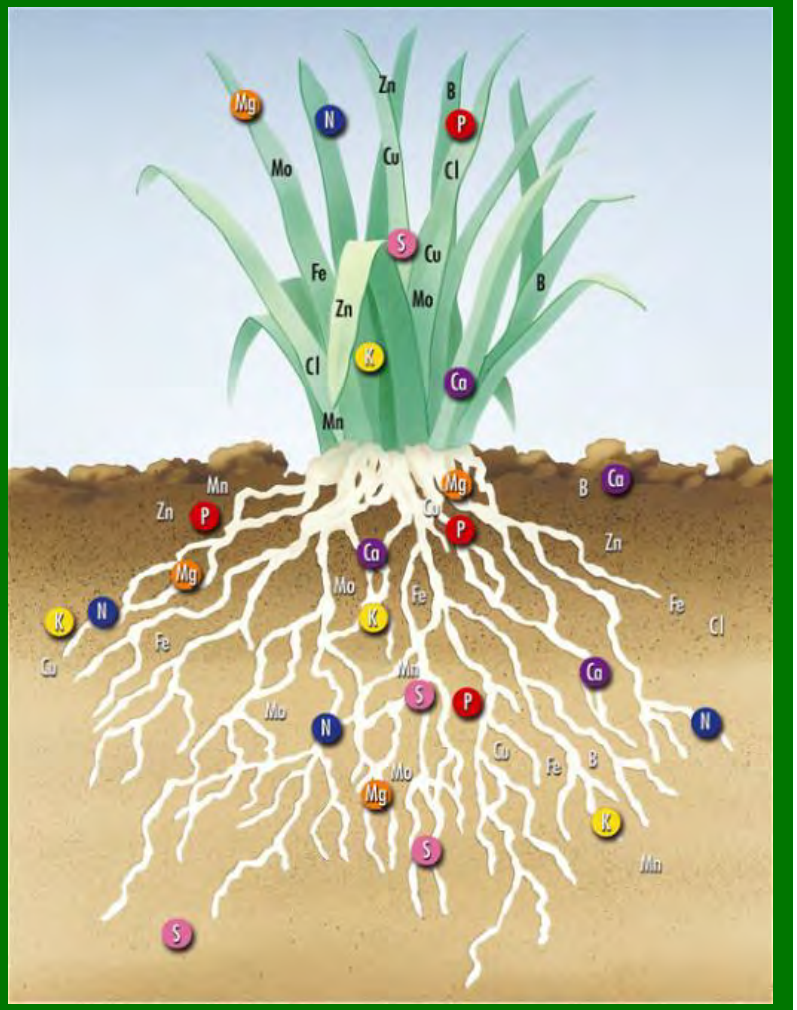
- pH can be lowered or elevated depending on present conditions of the soil and the pH requirements of the plant crop
- Amending soil – apply before planting:

To lower pH- add sulfur

To increase pH- add limestone (dolomitic or agricultural)

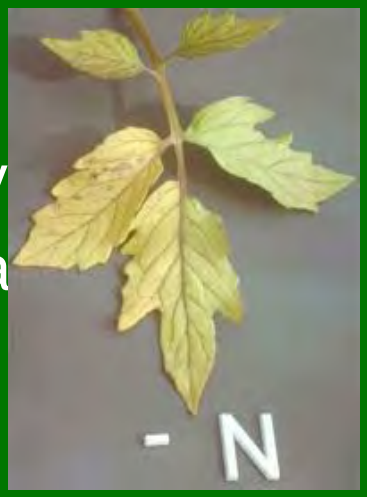
# SOIL: NUTRIENTS

***What are the nutrients needed for plant growth?***




- MACRONUTRIENTS
  - Primary – N-P-K
  - Secondary
- MICRONUTRIENTS
- Nutrient Transport
  - Mobility within plants
  - Sinks and sources

# SOIL: NUTRIENTS




- Nitrogen (N)
  - Enhance Vegetative Growth & Delays Maturity
  - Determines greenness color and density in pla
  - Needed for chlorophyll, which is needed for photosynthesis
  - Improves plant's ability to resist disease and tolerate effects of heat, cold, and drought
  - Deficiency symptom: yellowing of leaves called chlorosis
  - SOURCES
    - Dried Blood, Feather Meal, Seed Meal, Manur

# SOIL: NUTRIENTS

- Phosphorus/Phosphoric acid (P)
  - Hastens Maturity & Promotes Root Growth
  - Helps plants hold and transfer energy for metabolism
  - Affects cell division, root development, and flowering
  - Deficiency symptom: purple coloring of leaves or stems
  - Rock Phosphate, Bone Meal

# SOIL: NUTRIENTS

- Potassium/Potash (K)
  - Fruit/Seed Development & Stem Strength
  - Activates enzymes
  - Regulates opening and closing of stomata
  - Regulates water uptake by root cells
  - Wood Ashes, Greensand, Kelp

# SOIL: NUTRIENTS

- Secondary Macronutrients
  - Calcium (Ca):
    - Gypsum, Lime
  - Magnesium (Mg):
    - Compost, Manure, Lime
  - Sulfur (S):
    - Elemental Sulfur, Gypsum
    - Not as mobile in plants

## Table 3. Primary and secondary nutrient deficiency symptoms, the cause and method of correction

| Element | General deficiency symptoms | Probable cause of deficiency | Method of correction |
|---|---|---|---|
| nitrogen (N) | yellow leaves, stunted growth, lower leaves turn brown, leaves abort | low soil N, leaching from the soil, inadequate N applied | apply N fertilizer |
| phosphorus (P) | small plants, reddish-purple leaves, slow growth, loss of plant vigor | low soil P; cool, wet soils; inadequate P applied | apply P fertilizer |
| potassium (K) | small plants, brown margins on lower leaves, small weak stems, lodging of plants, poor yield and quality | low soil K, leaching from the soil, inadequate K applied | apply K fertilizer |
| calcium (Ca) | small plants, deformed buds, distorted leaves, failure to grow, poor fruit development. | low soil pH, leaching from the soil, inadequate lime applied | apply lime or Ca fertilizer |
| magnesium (Mg) | lower leaves—in severe cases, entire plants—turn yellow with green interveinal areas | low soil pH, leaching from the soil, no Mg applied in lime or fertilizer | apply dolomitic lime or Mg fertilizer |
| sulfur (S) | yellow plants, slow growth, low vigor, no response to applied nitrogen, low crop yield and quality | low soil S, leaching from the soil, low organic matter content, no S fertilizer applied | apply S fertilizer |

# SOIL: NUTRIENTS

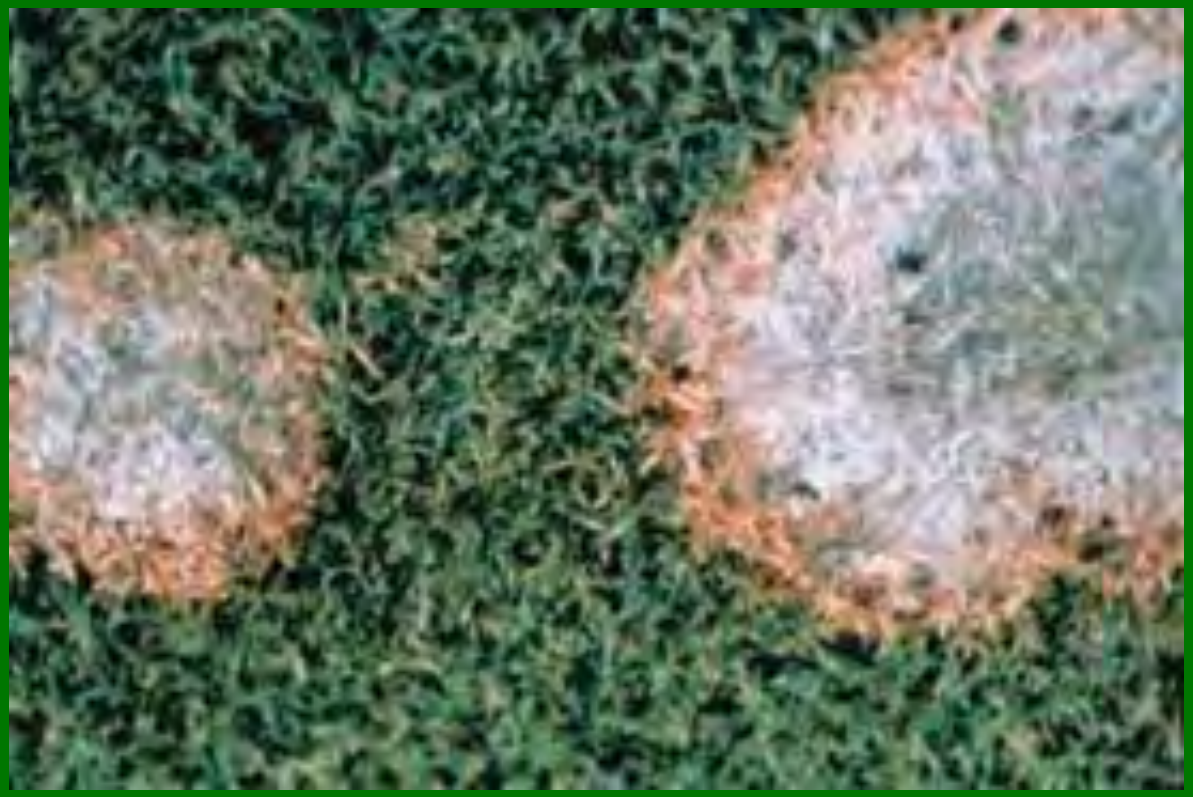
- MICRONUTRIENTS: Nutrients needed in very small amounts
  - B- Boron
  - Cu- Copper
  - Cl- Chlorine
  - Fe- Iron
  - Mn- Manganese
  - Mo- Molybdenum
  - Zn- Zinc

# SOIL: NUTRIENTS

- MICRONUTRIENTS:
  - Deficiencies occur in acid leached soils, alkaline soils, organic soils (>20%) or intensively cropped land.
  - USUALLY present in soil, organic compost and animal manures.
  - <u>Micronutrients can be toxic!</u>

# SOIL: Biological Properties

- Weeds
- Disease
- Insects



ABOVE: Fusarium Blight Patch

# WIND & WEATHER

- Wind
- Sun
- Rain
- Snow
- Hail
- Lightning

# BIOTIC FACTORS

- Insect pests
- Bacteria
- Fungi
- Nematodes
- Viruses
- Weeds
- Domestic and wild animals

# Plant Propagation

SEXUAL (seeds)

ASEXUAL
(cuttings, rhizomes)

# Plant Propagation: SEEDING

- Seed germination
  - Seed viability
  - Breaking physical and chemical dormancy
    - Soaking, scarifying, exposure to soil microorganisms, leaching, cold/moist stratification, fire scarifica
  - Temperature
  - Moisture
  - Aeration
  - Light

# Plant Propagation: SEEDING

- Seed types
  - Open pollinated
  - Hybrid
  - Genetically modified
  - Treated

LEFT: Maize seed treated with fungicide

# Plant Classification

- Why does it matter?
  - Crop Rotation / Disease Prevention
  - Understanding Plant Requirements

- How can we classify plants?

# Plant Classifications

- Classification Systems:
  - Botanical Plant Families
  - Based on edible part
  - Based on general gardening categories
  - Based on life cycle
  - Based on climactic adaptation
  - Based on pollination
  - Based on special uses

# Classification by Plant Families

*CLASSIFICATION*

- Amaranthaceae (Quinoa, Beet, Spinach)
- Amaryllidaceae (onions, garlic, leeks)
- Apiaceae (parsley, dill, carrot)
- Asteraceae (sunflower, artichoke, dandelion)
- Brassicaceae (mustard, cabbage, radish)
- Cucurbitaceae (cucumber, melon, squash)
- Fabaceae (bean, pea, lentil, clover)
- Lamiaceae (mint, basil, lavender)
- Poaceae (corn, wheat, rice, barley)
- Rosaceae (rose, apple, blackberry, plum)
- Solanaceae (tomato, pepper, potato)

# Plant Families

**AMARANTHACEAE:**
Amaranth Family
(includes
Chenopodiaceae, former
Goosefoot Family)

# Plant Families

**AMARYLLIDACEAE:**
Amaryllis Family
(includes Allioideae)

*CLASSIFICATION*

# Plant Families

**APIACEAE (UMBRELLIFERAE) :** Carrot or Parsley Family

*CLASSIFICATION*

# Plant Families

## ASTERACEAE (COMPOSITAE):
Aster, Daisy or Sunflower Family

*CLASSIFICATION*

# Plant Families

**BRASSICACEAE (CRUCIFER**

Mustards, Crucifers or Cabbage Family

*CLASSIFICATION*

# Plant Families

CUCURBITACEAE:
Cucurbit or Gourd Family

# Plant Families

**FABAC**
**(LEGUMINOSAE):**
Legume, Pea or Bean Family

*CLASSIFICATION*

# Plant Families

**LAMIACEAE**
**(LABIATAE):** Mint Fami

*CLASSIFICATION*

# Plant Families

**F**

**(GRAMINEAE)** : Grass Family

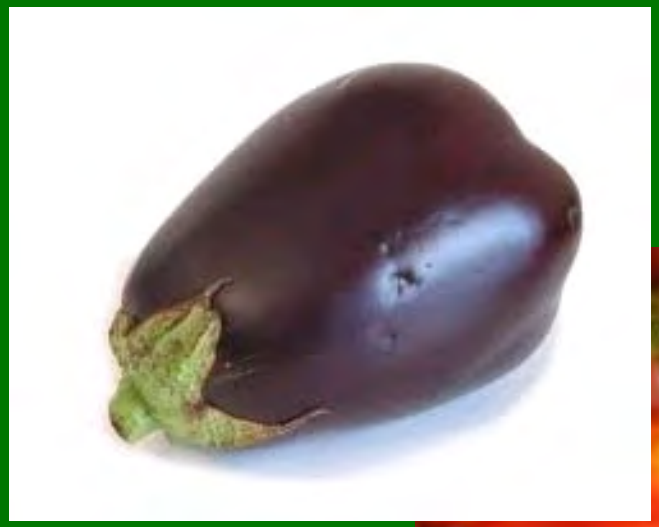
*CLASSIFICATION*

# Plant Families

**ROSACEAE: Rose Family**

*CLASSIFICATION*

# Plant Families



**SOLA**

Nightshade or Potato Family

*CLASSIFICATION*

# Plant Families & Crop Planning

- Avoid Disease and Pest Build-up
- Use Different Nutrients
- Significant for Saving Seed

# Classification by Edible Part

- Root vegetables (carrots, beetroot, radish)
- Tuber vegetables (Yam, Irish potato)
- Corm (Taro)
- Stem vegetable (Asparagus)
- Leaf vegetables (Lettuce)
- Bulb vegetable (Onion, garlic)
- Fruit vegetable (Tomato, okra)
- Flower vegetables (Broccoli, Cauliflower)
- Seed vegetable (Peas)

# Classification by General Gardening Categories

- Root crops
- Legumes
- Vine crops
- Fruit crops
- Brassicas
- Greens

# Classification by Life Cycle

- Annuals (Amaranth, Pumpkins
- Biennials (Cabbage, Beet)
- Perennial (Chive, Asparagus)

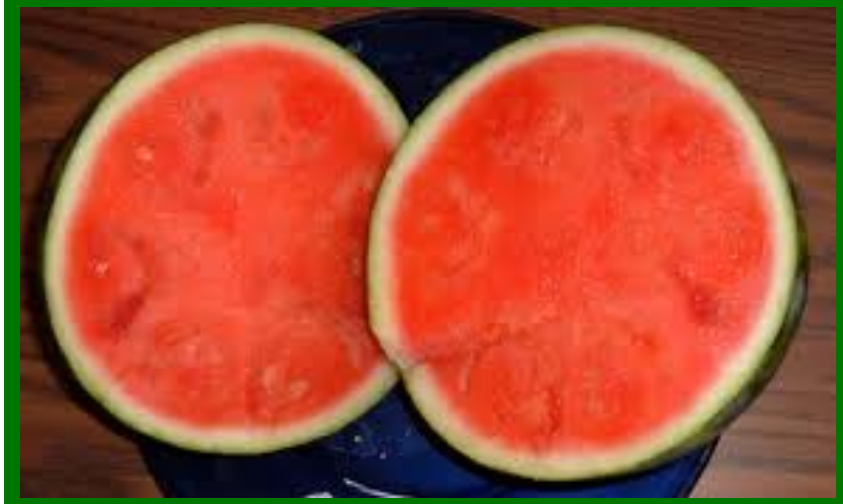
# Classification by Climate

- Based on climatic adaptation
  - Warm season crops (Okra, Pepper)
  - Cool season crops (Cauliflower, Broccoli)

# Classification by Pollination

- Based on Pollination
  - Self
  - Cross
  - Parthenocarpic

Parthenocarpic: peanuts



Self-Pollination: seedless watermelon

Cross-Pollination

# Classification by Special Uses

- Main crop
- Trap/Repellant crop
- Nurse crop
- Cover Crop / Green Manure / Catch Crop
- Intercrop / Filler/ Relay
- Hedgerow/ Border crop

# Plant Classification: Agricultural Crop vs. Weed

*A weed is an unintended plant or any plant which grows where it is not wanted. It competes with the intended crop for space, soil water, nutrients and light or becomes a nuisance in any manner.*

*CLASSIFICATION*

# Considerations for Crop Planning

- Nutrient usage
- Pests & diseases
- Plant compatibility
- Seed saving
- Effect on soil tilth
- Post-crop weeds (including self-sown crops)
- How long are they in the ground?
- Are they frost-sensitive?
- Do they need trellising or row-cover?

# QUESTIONS?

# SOIL FERTILITY AND NUTRIENT MANAGEMENT– Class Outline

I. Learning Objectives
   a. Understand the components of soil
   b. Understand soil properties (physical, chemical & biological), and how they affect plant growth
   c. Understand soil fertility and soil nutrients
   d. Learn about various fertilizer options
   e. Learn how to assess soil fertility

II. Student Pre-test
   a. What is soil?
   b. Name some physical, chemical and biological properties of soil
   c. What is pH? How and why does soil pH affect plant growth?
   d. What are some tools and techniques that can help us assess soil fertility?

III. PowerPoint Presentation – see accompanying document

IV. Handouts:
   a. "Nutrient Management for Commercial Fruit & Vegetable Crops in Minnesota" http://www.extension.umn.edu/distribution/cropsystems/components/5886_full.pdf
   b. Sample soil test results – see accompanying document
   c. "Soil Test Interpretation Guide", http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/22023/ec1478.pdf
   d. "Organic fertilizer & cover crop calculator, Quick Guide", http://smallfarms.oregonstate.edu/sites/default/files/CalculatorQuickGuideRecordsSheet.pdf
   e. Soil Fertility Resource List – see accompanying document

V. Exercises
   a. "Making Compost on the Market" developed by Susan Muller
      i. Ask the group: What five ingredients do you need to make compost?
      ii. Write the correct answers on the board as you receive them. You should come up with the following list: air, water, carbon, nitrogen and decomposers. Have the group brainstorm examples of carbon and nitrogen. Write down correct examples on the board. See if they can make a statement about carbonaceous or nitrogenous ingredients (for example, things with lots of carbon tend to be drier). Explain that nitrogenous ingredients tend to be more powerful than carbonaceous

ones, so they should aim for 2 carbon to each nitrogen in their compost piles.

iii. Tell them the rules of the game:
    1. Each person will receive five ingredient cards. (Make sure there are enough water and air cards passed out so that each player could potentially have one of each).
    2. They should NOT disclose their cards to other players.
    3. The goal of the game is to be able to make a great compost pile with their ingredient cards.
    4. They may trade a card (or 2 or 3 or 4) with any of the other players, as many times as they like.

iv. Depending on the age and skill of the players, the instructor should impose a time frame to keep things moving. When the trading bell rings (or some sort of signal is given), trading will stop and players will need to make a compost pile with the cards they have at that time. Go around the group and ask each player to describe their 'pile', what they think they might need to add, and how the whole process went. Players will listen to others recount their experiences and learn from what others share.

v. Cards represent the following ingredients (# of cards in parentheses are for up to 10 players)
    1. Water (10)
    2. Air (10)
    3. Meat and cheese scraps (2)
    4. Bacteria (6)
    5. Fungi (6)
    6. Chicken guts (2)
    7. Old hay (4)
    8. Straw (4)
    9. Dry leaves (4)
    10. Sticks (4)
    11. Coffee grounds (2)
    12. Pine needles (4)
    13. Fresh manure (1)
    14. Worms (5)
    15. Urine (2)
    16. Milk/whey (2)
    17. Insects (5)
    18. Paper (3)
    19. Green grass clippings (2)
    20. Blood (2)
    21. Sawdust (4)
    22. Dry wood chips (4)

b. Soil sampling -
    i. Materials: shovels or soil probes, (pH testing equipment), (soil thermometer)
    ii. Go into the field and the students, in groups of 2, take soil samples in various areas of the field with a shovel or soil probe.
    iii. Ask the groups to examine the physical, chemical and biological properties of their soil sample. Some traits to note include: color, compaction, moisture content, organic content, pH (if you have materials for testing, such as a pH meter or litmus paper, distilled water and jars), profile, structure, texture and temperature (if you have a soil thermometer).
    iv. Have the groups come together to share their results with the rest of the class.

VI. Final Assessment

As a class, go over the pre-test together using the information gained through the lecture and exercises.

# Soil Fertility and Nutrient Management

Elizabeth Murphy
Growing Agriprenuers
May 10th, 2012

Southern Oregon Research and Extension Center
Small Farms Program
elizabeth.murphy@oregonstate.edu
541-776-7371 ext 208

# Overview

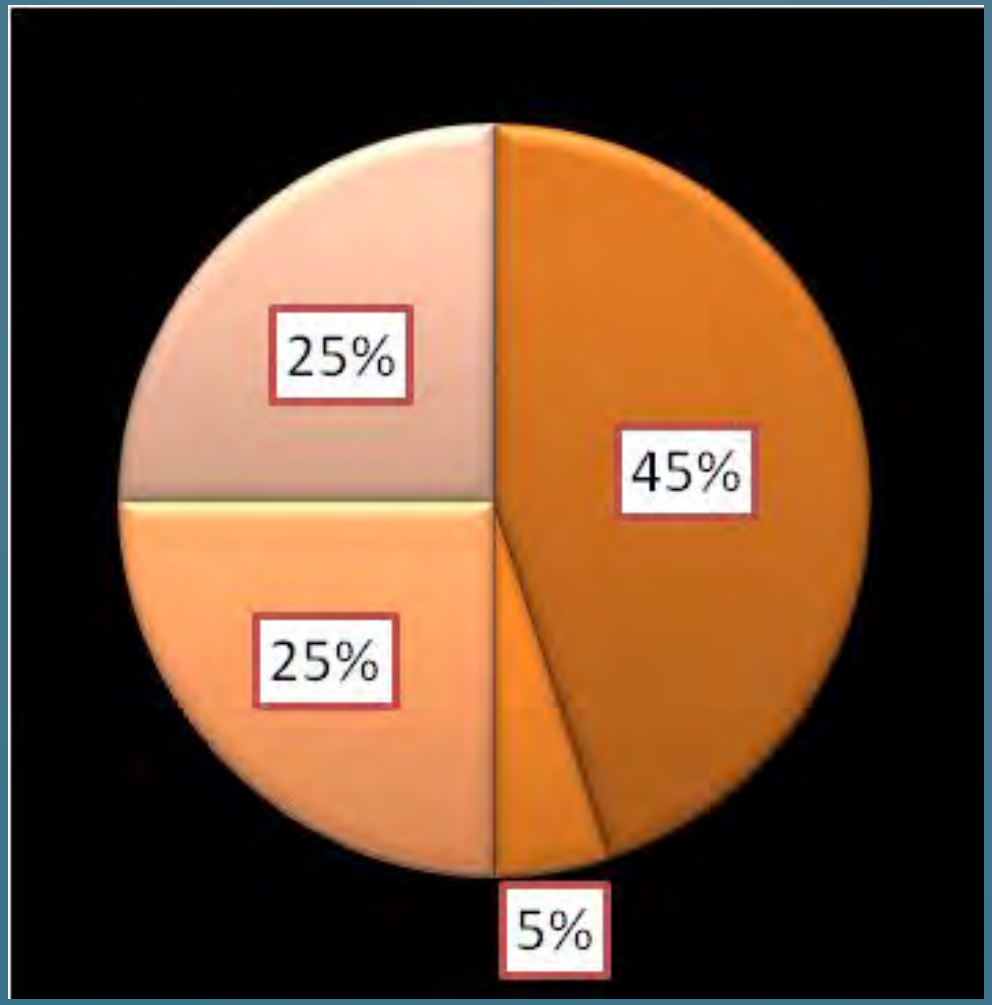
- Soil Properties
  - Physical
  - Chemical
  - Biological
- Soil Organic Matter
- USDA Soil Survey
- Soil Nutrients
- Soil Testing
- Choosing Fertilizers

# Properties of a Soil

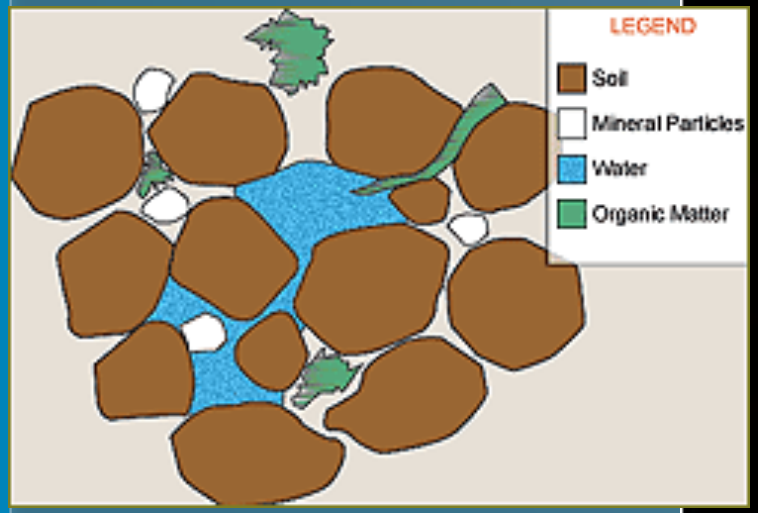
- What is a soil
- Soil Components
- Soil Properties
  - Physical
  - Chemical
  - Biological
- Using the Soil Survey

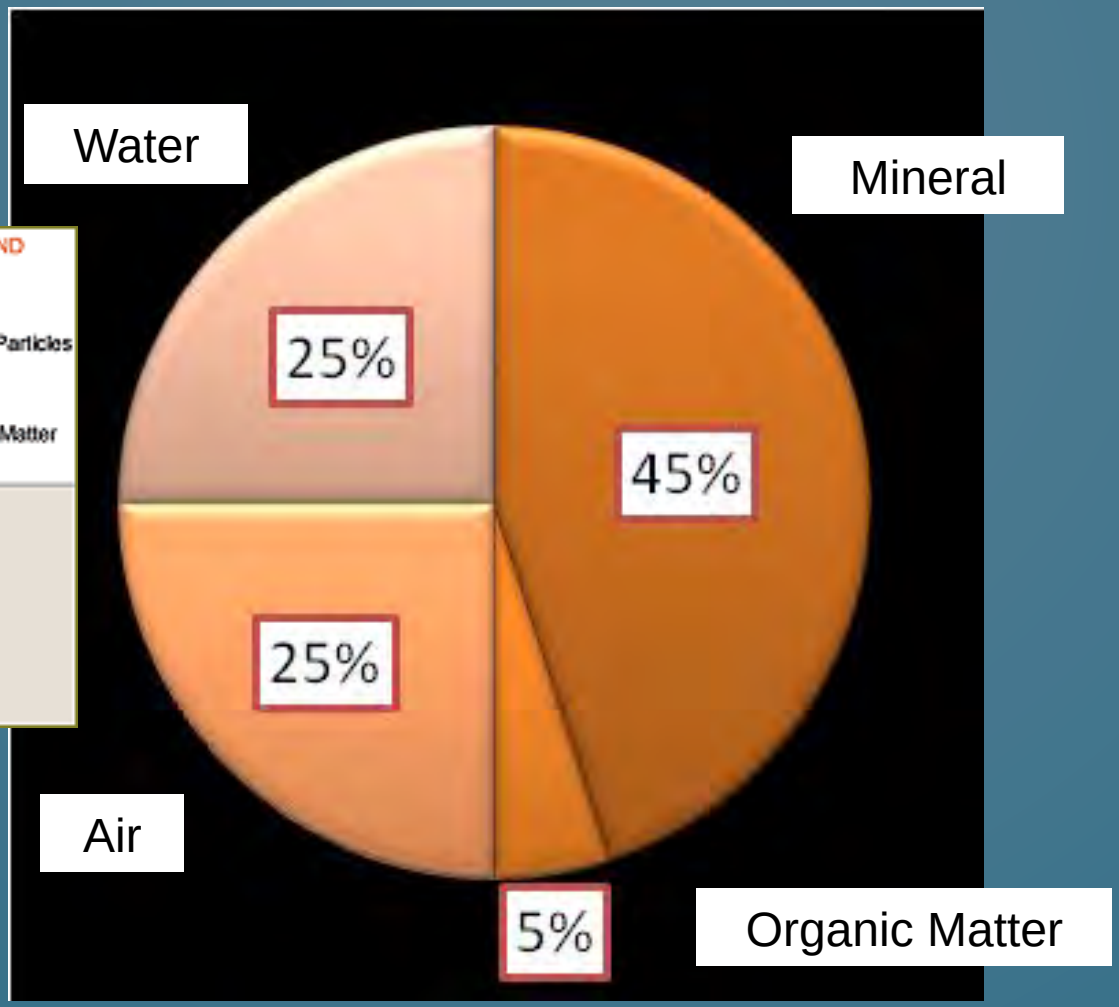
# What is a soil

# Components of a Soil



# Components of a Soil



# Soil Physical Properties

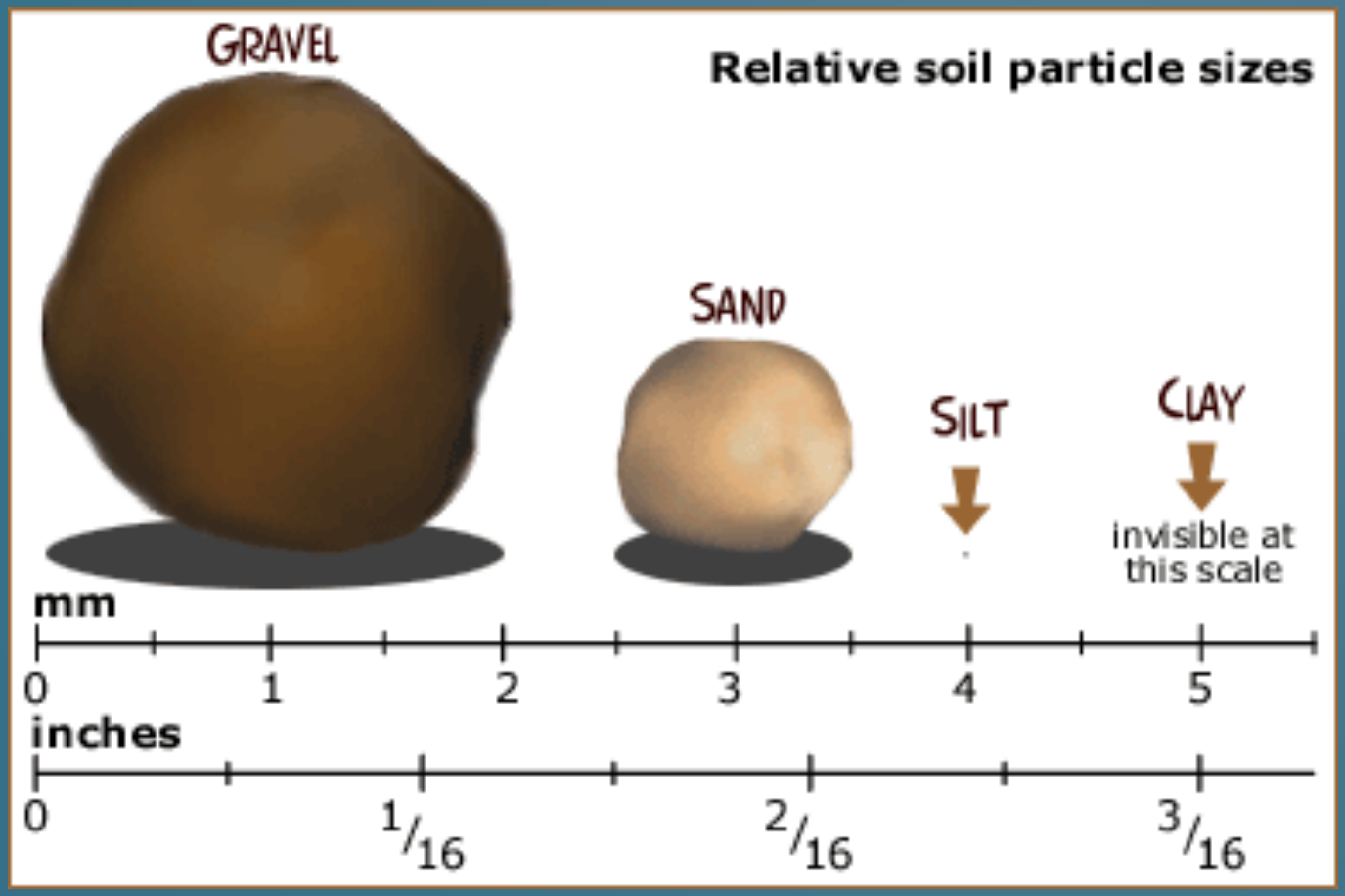
- Soil Texture
- Soil Structure
- Bulk Density

Porosity

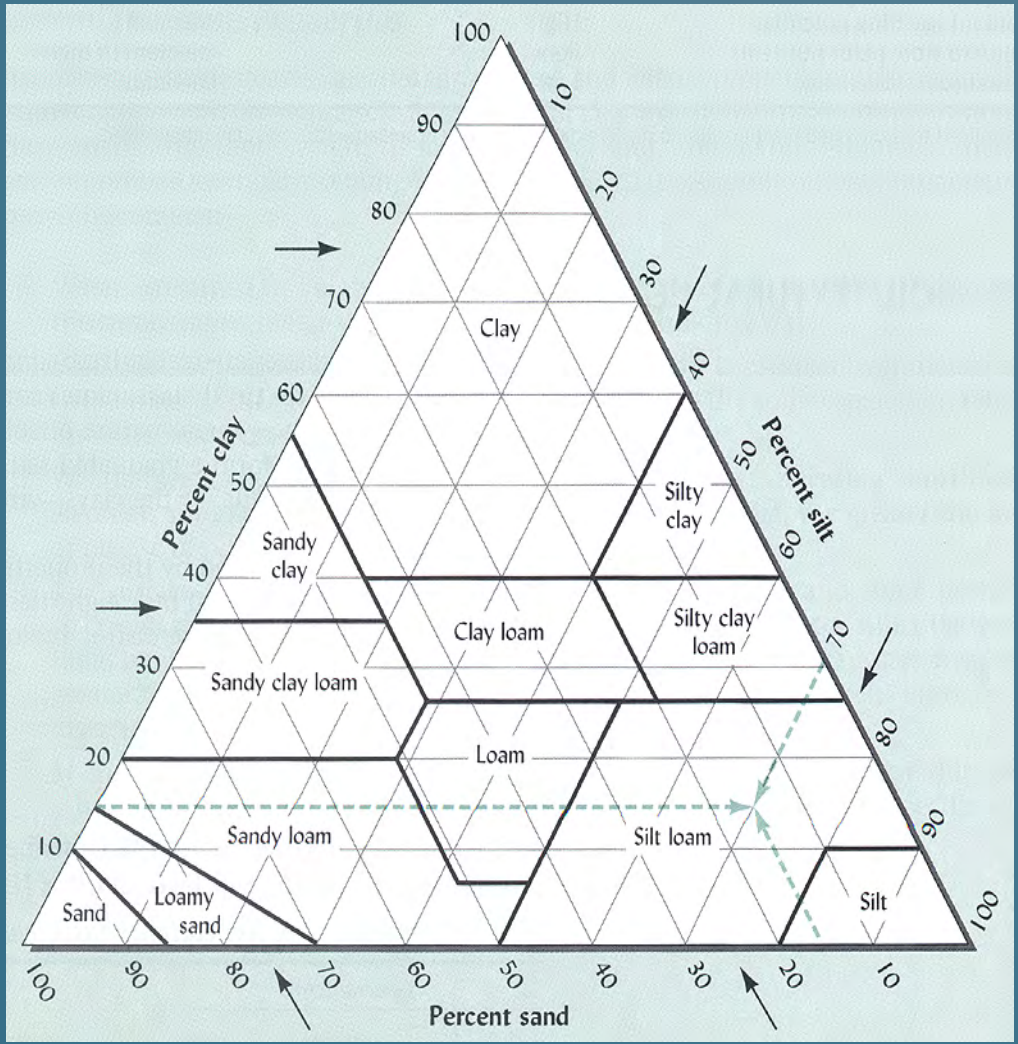
Permeability

Soil Color

# Soil Physical Properties
## Soil Texture

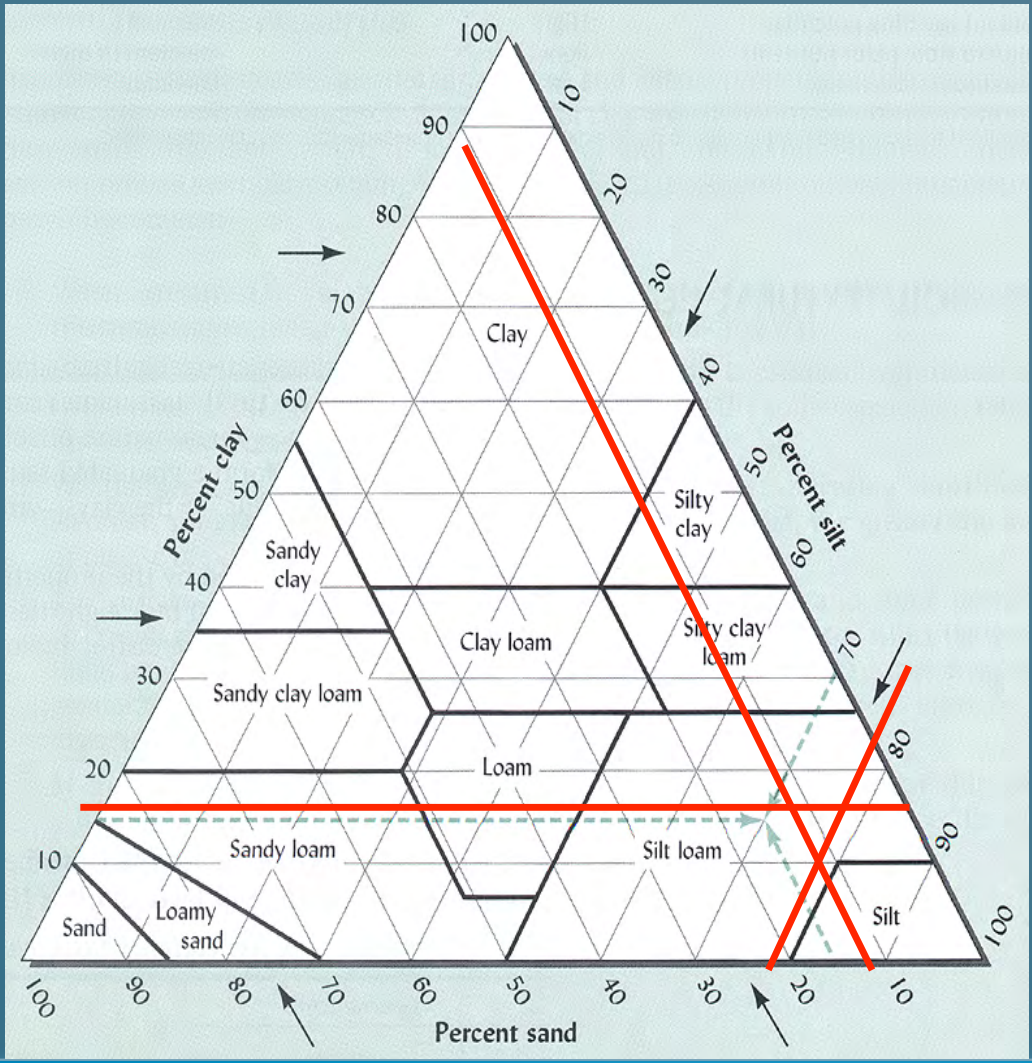


# Soil Physical Properties
# Soil Texture

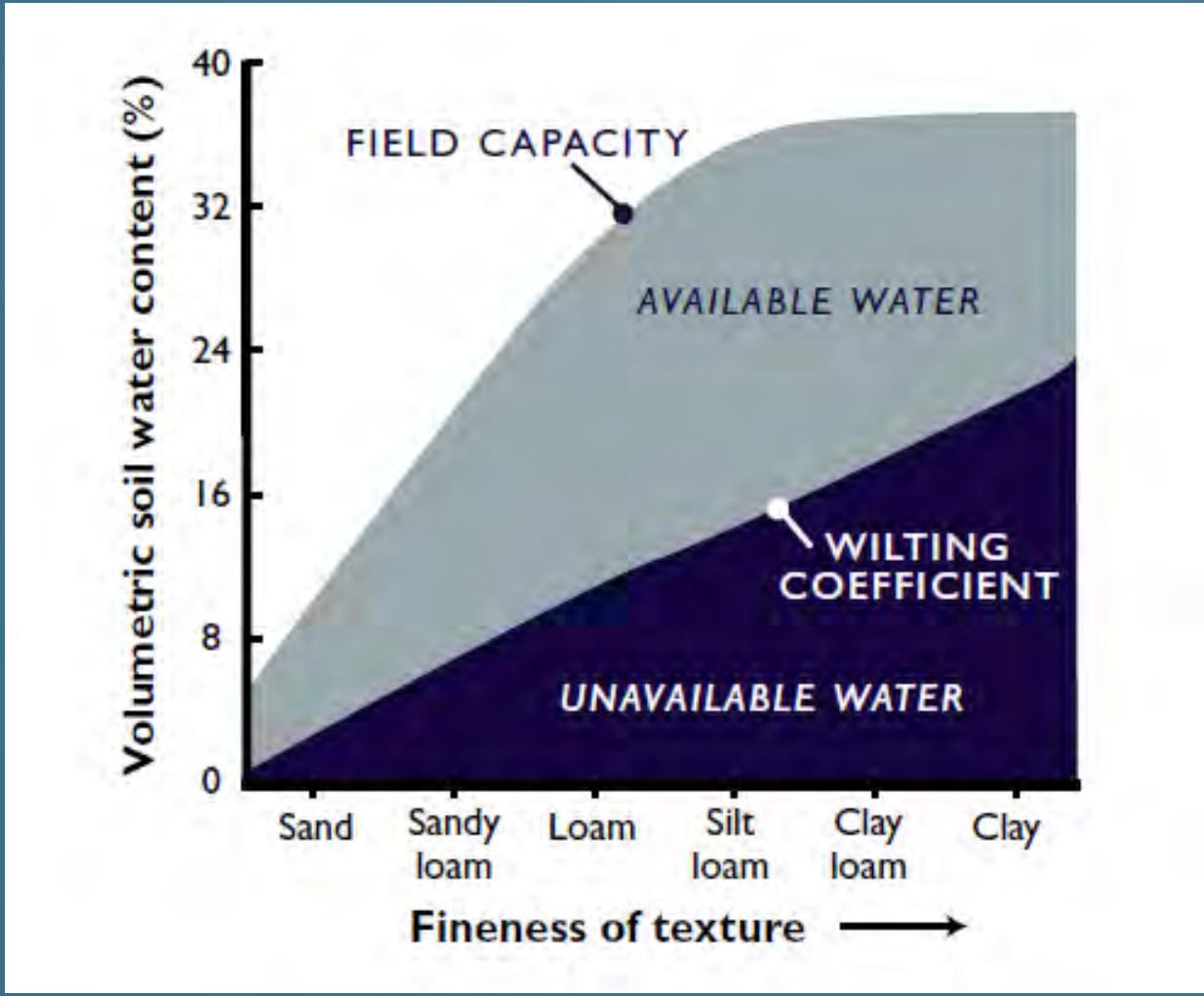


# Soil Physical Properties

## Soil Texture



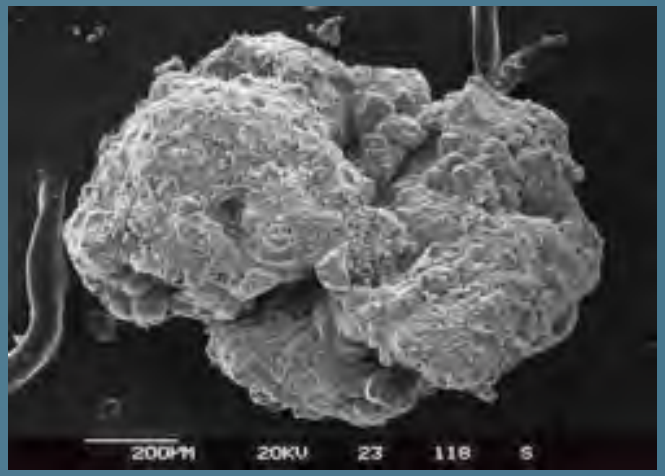
# Soil Physical Properties
## Soil Water



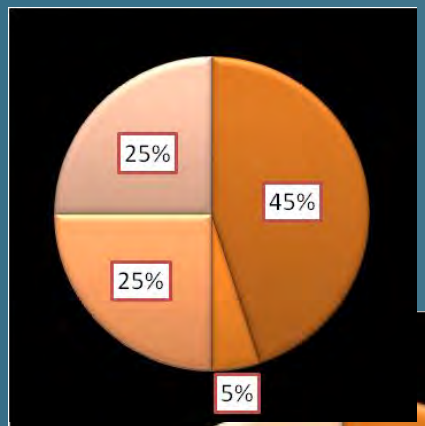
# Soil Physical Properties
# Soil Structure

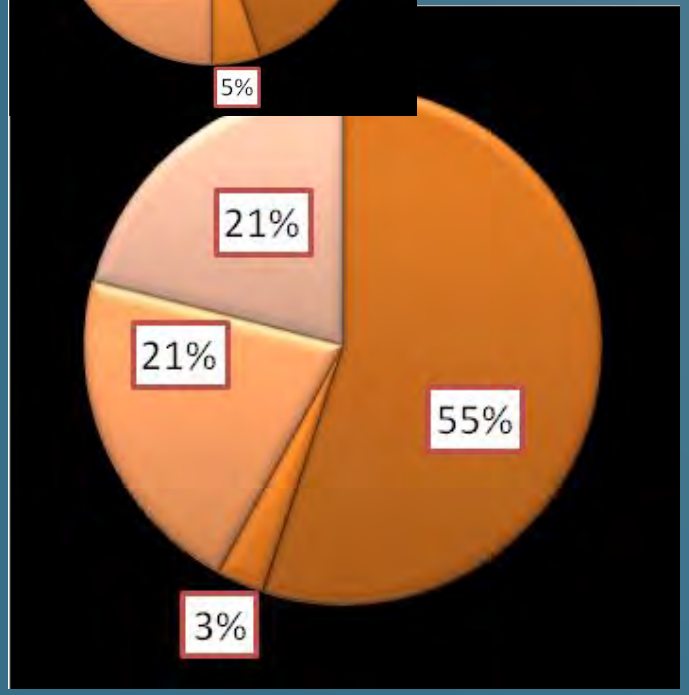
## Soil Aggregate Stability

- Soil Organic Matter
- Biological Activity
- Water Holding Capacity
- Erosion potential
- Permeability



# Soil Physical Properties
# Bulk Density




Soil Compaction

*Table 1. General relationship of soil bulk density to root growth based on soil texture.*

| Soil Texture | Ideal bulk densities for plant growth ($g/cm^3$) | Bulk densities that restrict root growth ($g/cm^3$) |
|---|---|---|
| Sandy | < 1.60 | > 1.80 |
| Silty | < 1.40 | > 1.65 |
| Clayey | < 1.10 | > 1.47 |

NRCS Soil Quality Indicators

# Soil Physical Properties
# Soil Tilth

Physical condition of the soil in relation to plant growth

- Aggregate formation and stability
- Bulk density
- Soil moisture content
- Soil aeration
- Infiltration rate
- Water-holding capacity
- Friability

# Soil Chemical Properties

- Exchange Capacity
- Soil Acidity

Salinity

Sodicity

Base saturation

# Soil Chemical Properties
# Exchange Capacity

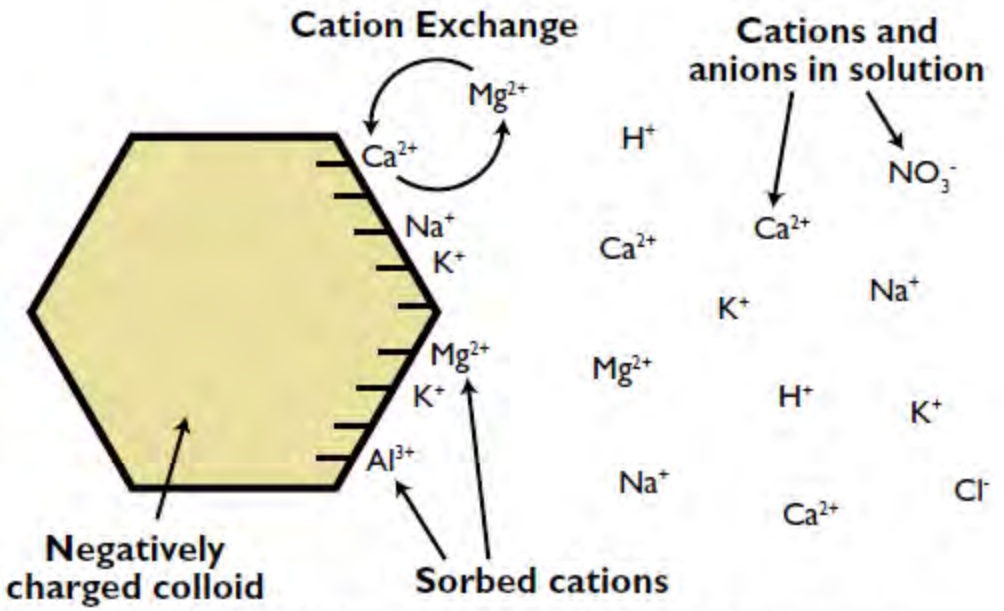



**Figure 9.** Simplified representation of exchange capacity. Because the colloid is primarily negatively charged, cations dominate the exchange sites. (Adapted from Brady and Weil, 2002)

Cations (+)

Anions (-)

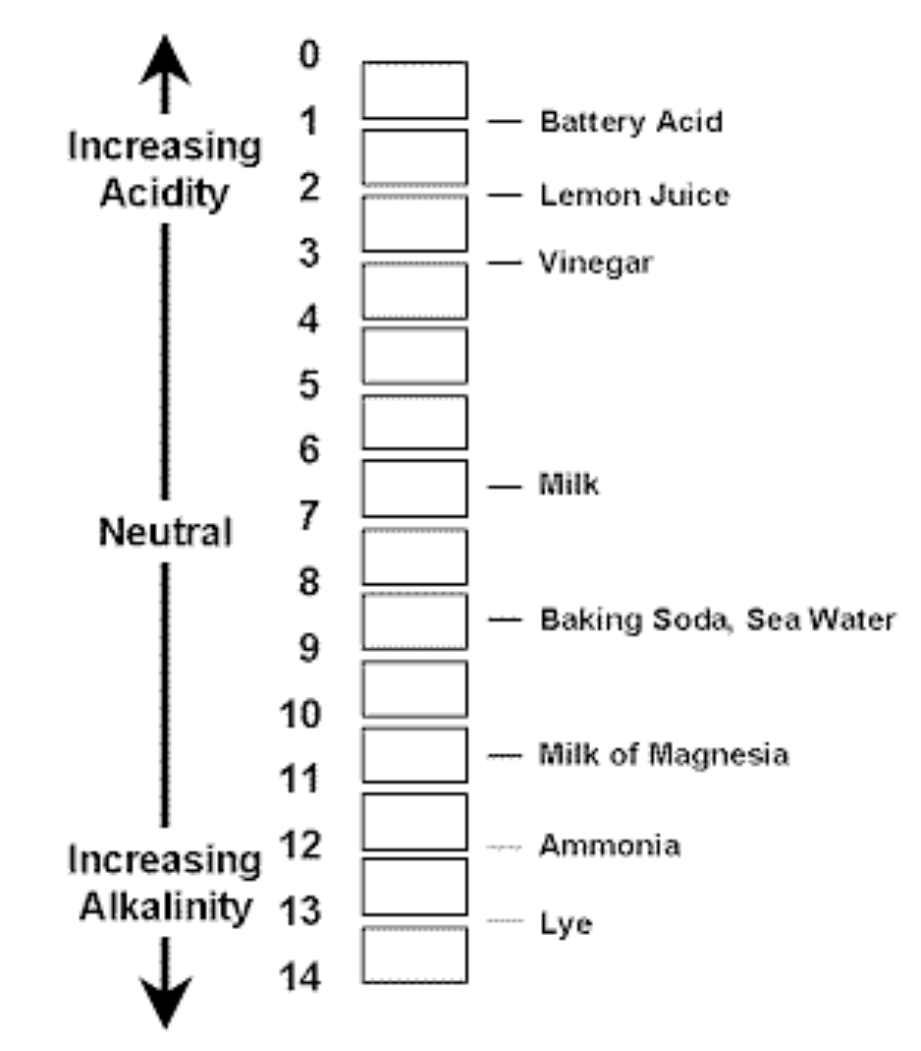
- Clay amount
- Clay type
- pH
- Organic Matter

# Soil Chemical Properties
# pH

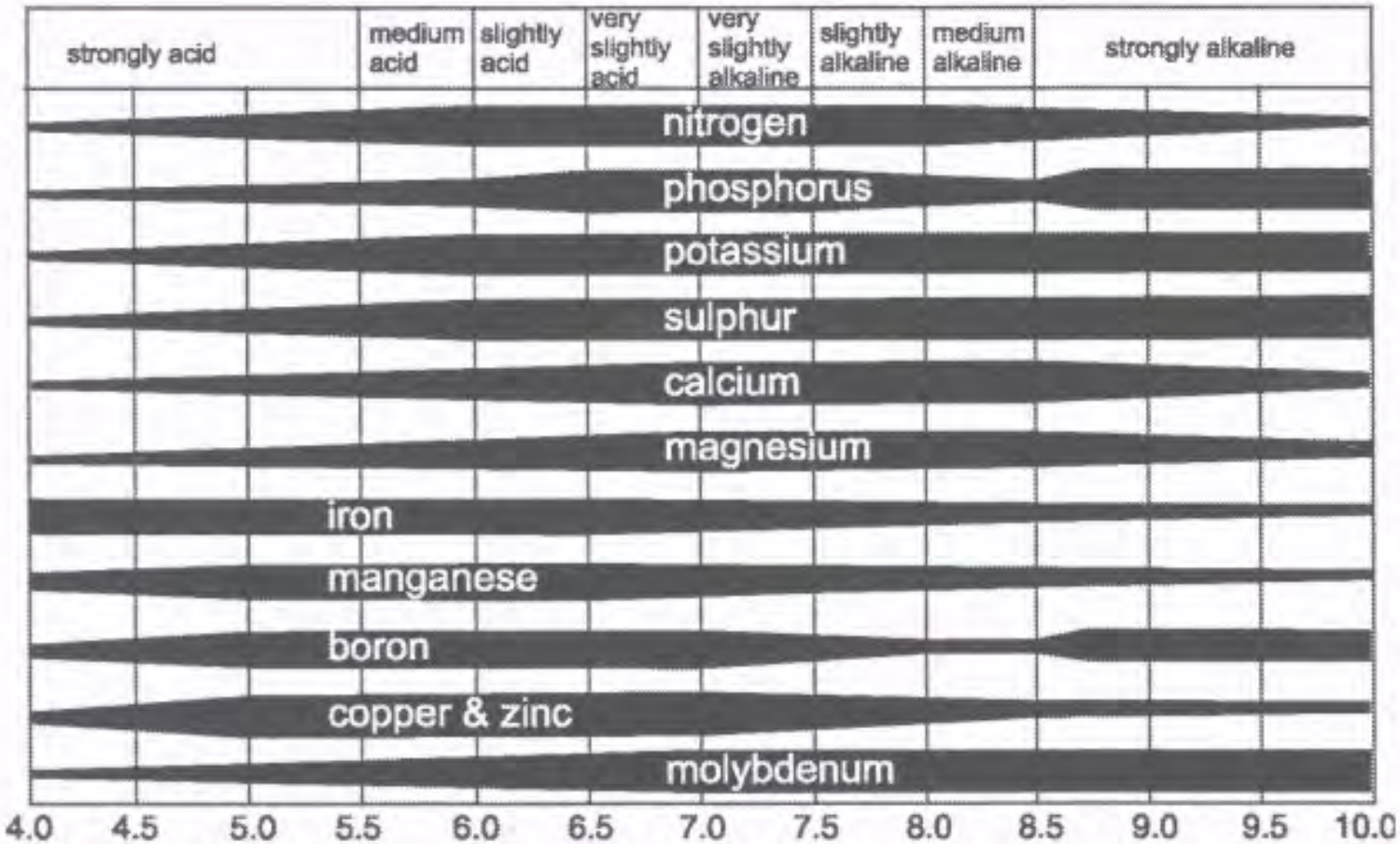
Soil Acidity (pH)

- Measure of Hydronium ions
- Potential and Active Acidity
- Exchange capacity (nutrient retention)
- Nutrient availability

# Soil Chemical Properties
# pH



# Soil Chemical Properties
# pH



# Soil Chemical Properties
# pH

*Table 2: Maximum, minimum, and optimum pH values for microbial groups. (adapted from Smith and Doran 1996)*

| Microorganisms | Range | Optimum |
|---|---|---|
| Bacteria | 5 - 9 | 7 |
| Actinomycetes | 6.5 - 9.5 | 8 |
| Fungi | 2 - 7 | 5 |
| Blue green bacteria | 6 - 9 | > 7 |
| Protozoa | 5 - 8 | > 7 |

# Soil Chemical Properties
# pH

Affected by:

- Rainfall/irrigation
- Fertilizers
- Organic matter decomposition
- Lime
- Base cations
- Temperature
- Weathering and parent material

# Soil Properties
# pH management

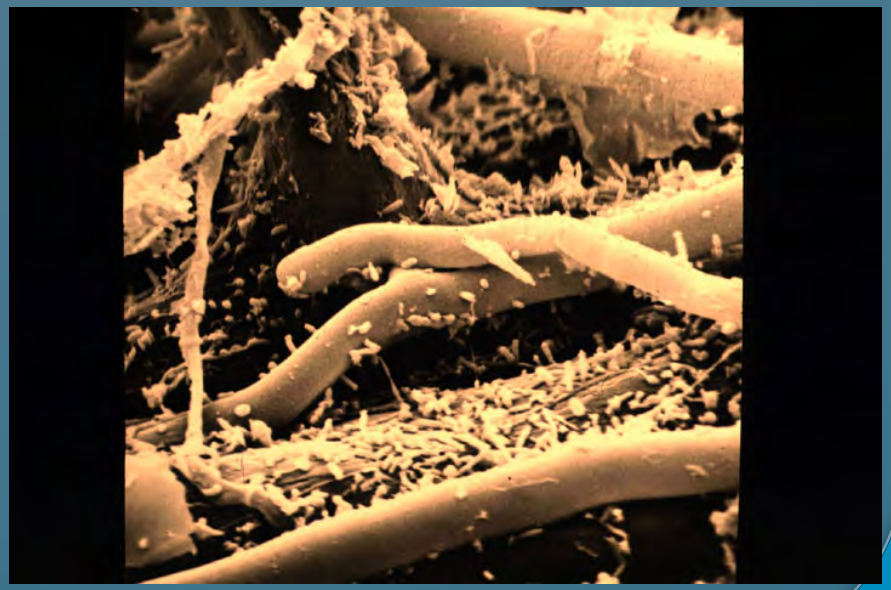
- Lime application
  - Based on recommendations
  - Grade determines effectiveness
  - Dolomitic to manage Mg
  - Calcium carbonate equivalent

Liming Materials

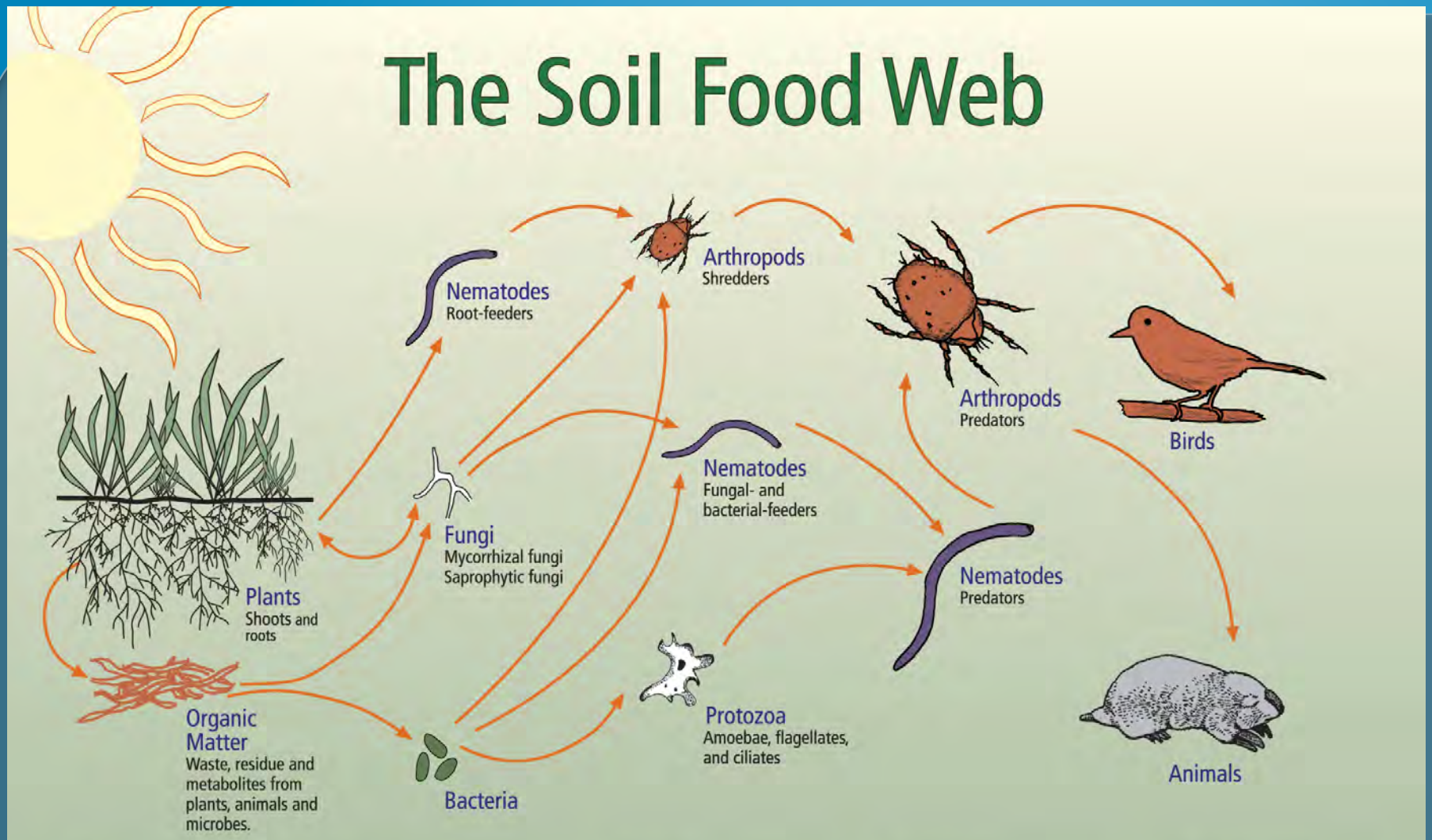
| Liming material | Chemical name | Relative neutralizing value |
|---|---|---|
| Calcitic limestones | calcium carbonate ($CaCO_3$) | 100 |
| Quicklime | calcium oxide ($CaO$) | 150–175 |
| Hydrated lime | calcium hydroxide ($Ca(OH)_2$) | 120–135 |
| Dolomitic lime | calcium-magnesium carbonate | 95–108 |
| Slag | calcium silicate ($CaSiO_3$) | 50–70 |

# Soil Biological Properties

- Can modify both chemical and physical properties
- Living and dead organisms
- Nutrient cycling and retention
- Nitrogen fixation
- Symbiotic relationships
- Soil structure
- Pathogen control



# The Soil Food Web




**First trophic level:**
Photosynthesizers

**Second trophic level:**
Decomposers
Mutualists
Pathogens, Parasites
Root-feeders

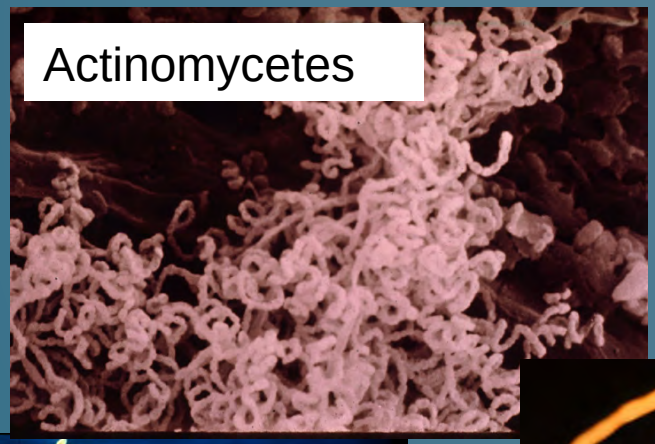
**Third trophic level:**
Shredders
Predators
Grazers

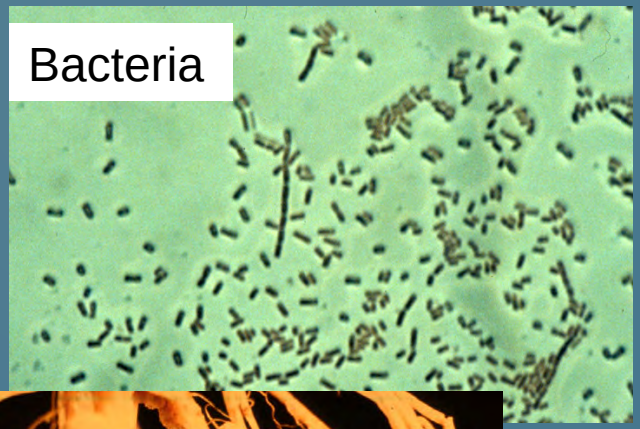
**Fourth trophic level:**
Higher level predators

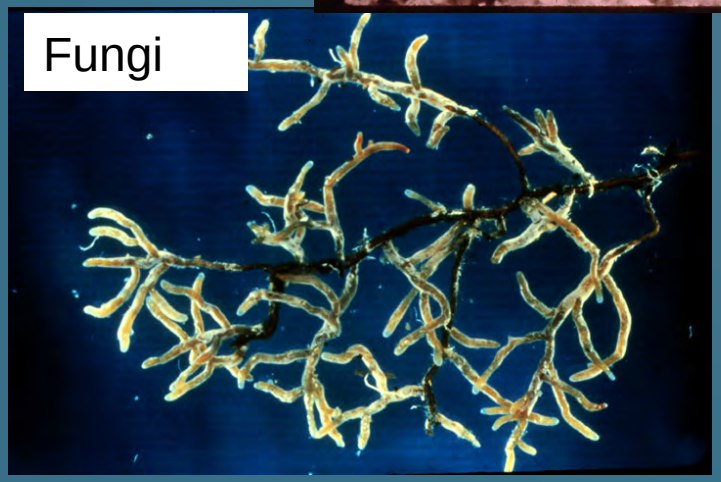
**Fifth and higher trophic levels:**
Higher level predators

# Soil Biological Properties

## Flora

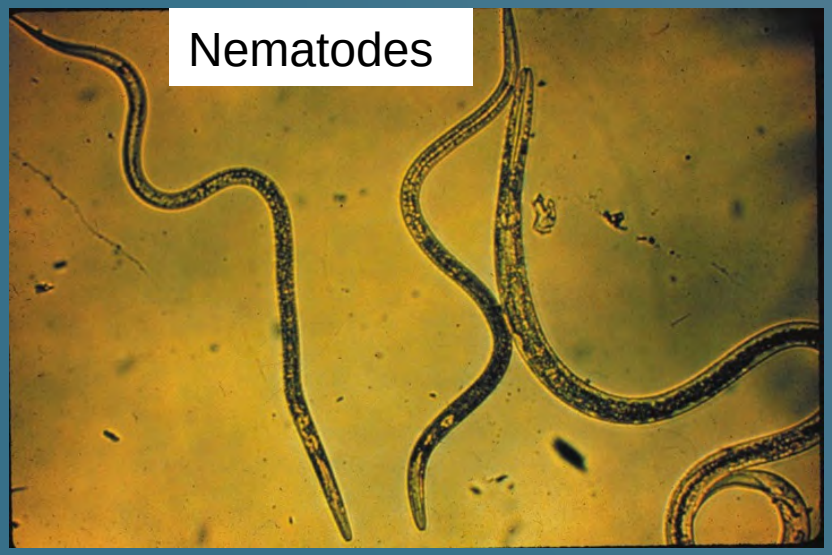


# Soil Biological Properties

## Microfauna



# Soil Biological Properties

## Meso and Macrofauna

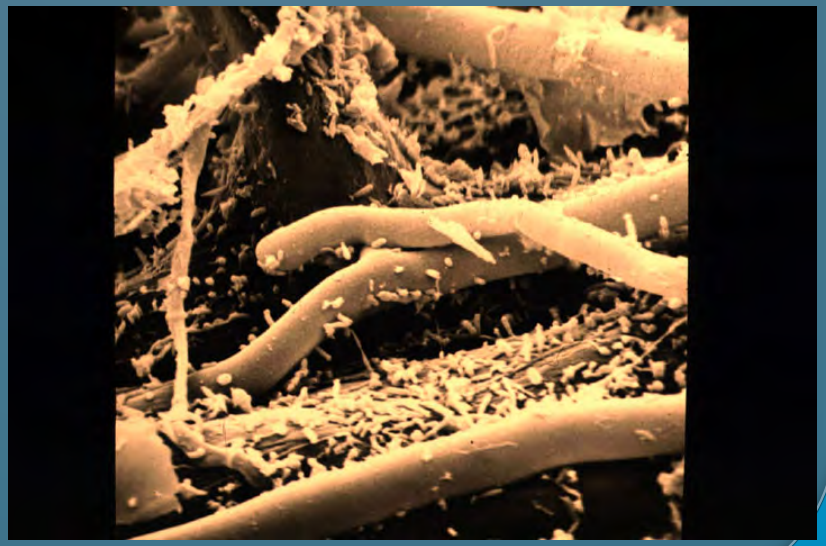
Arthropods

Earthworms

# Soil Biological Properties

Affected by:

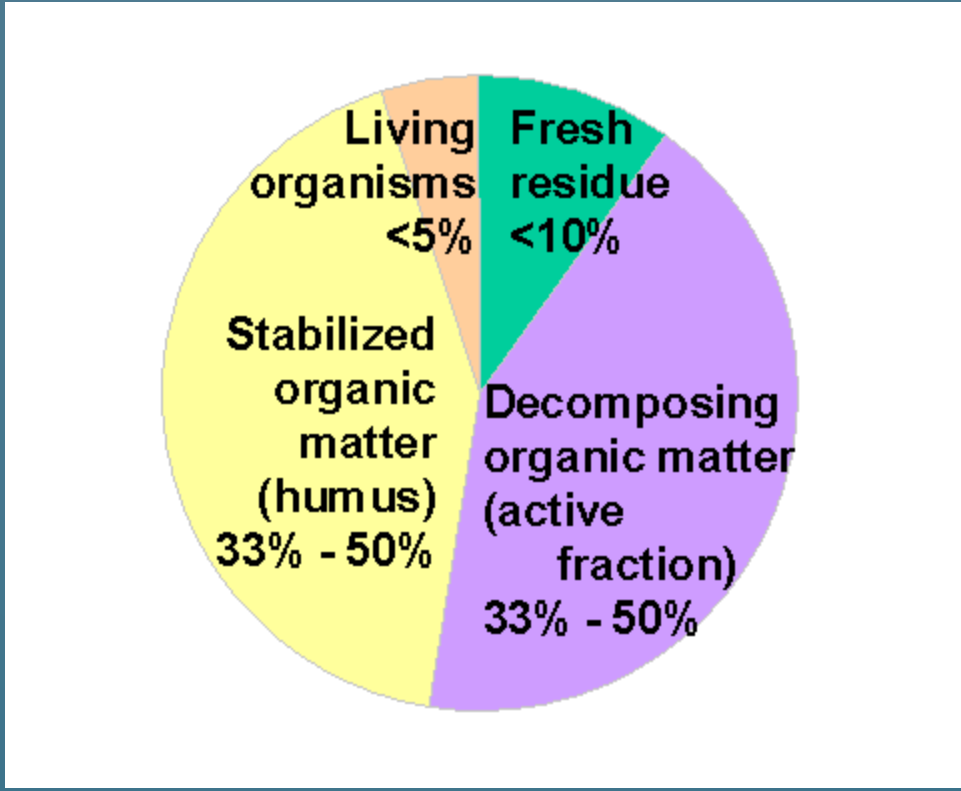
- Residue/Organic matter additions
- Tillage
- Temperature, moisture, pH
- Fertilization



# Soil Organic Matter

## Fundamental to nutrient management

- Improves soil structure
- Improves water holding capacity
- Improves aeration and drainage
- Reduces compaction
- Nutrient availability
- Nutrient retention
- Nutrient synchrony

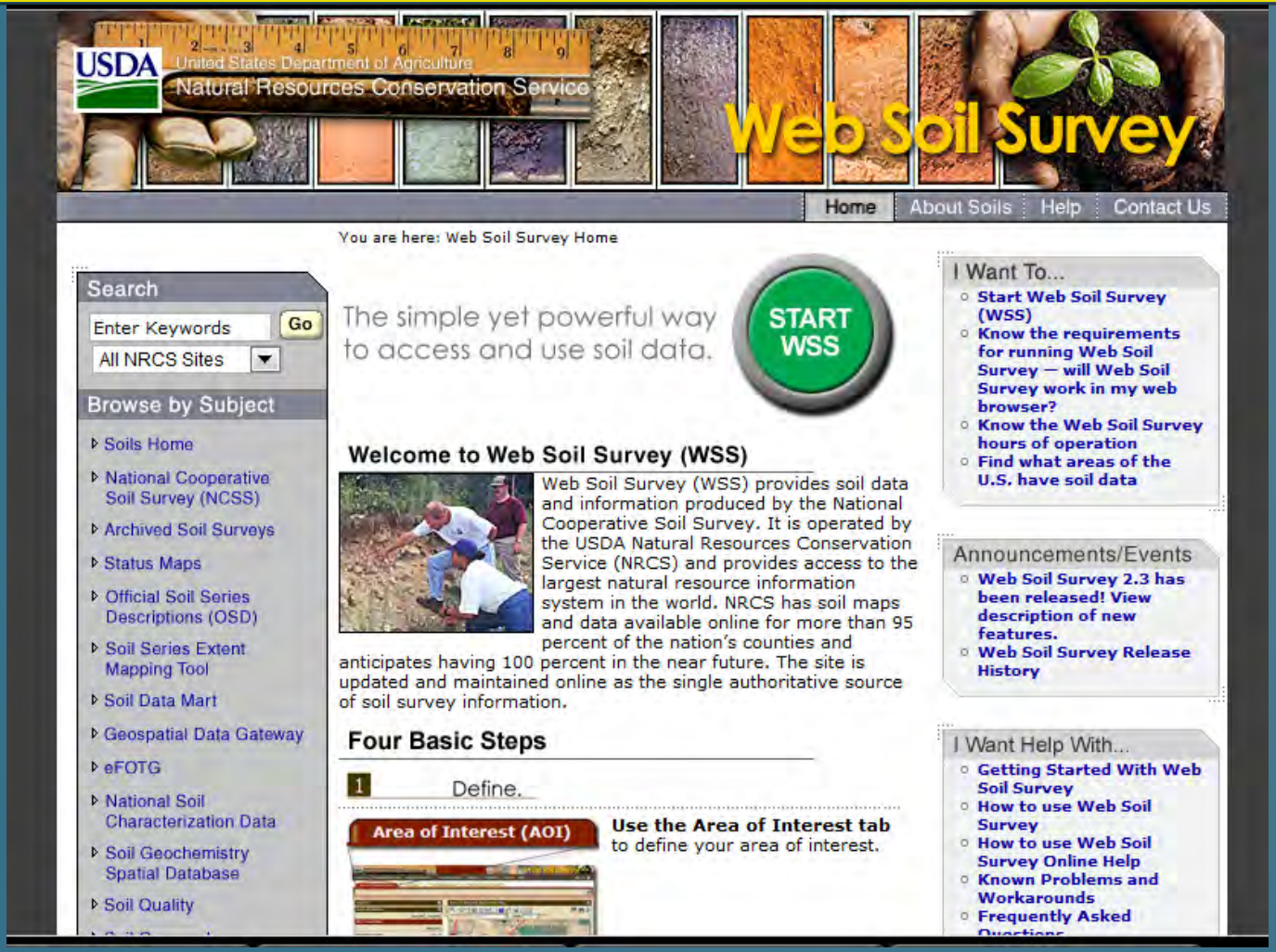


# Soil Organic Matter

Fundamental to nutrient management

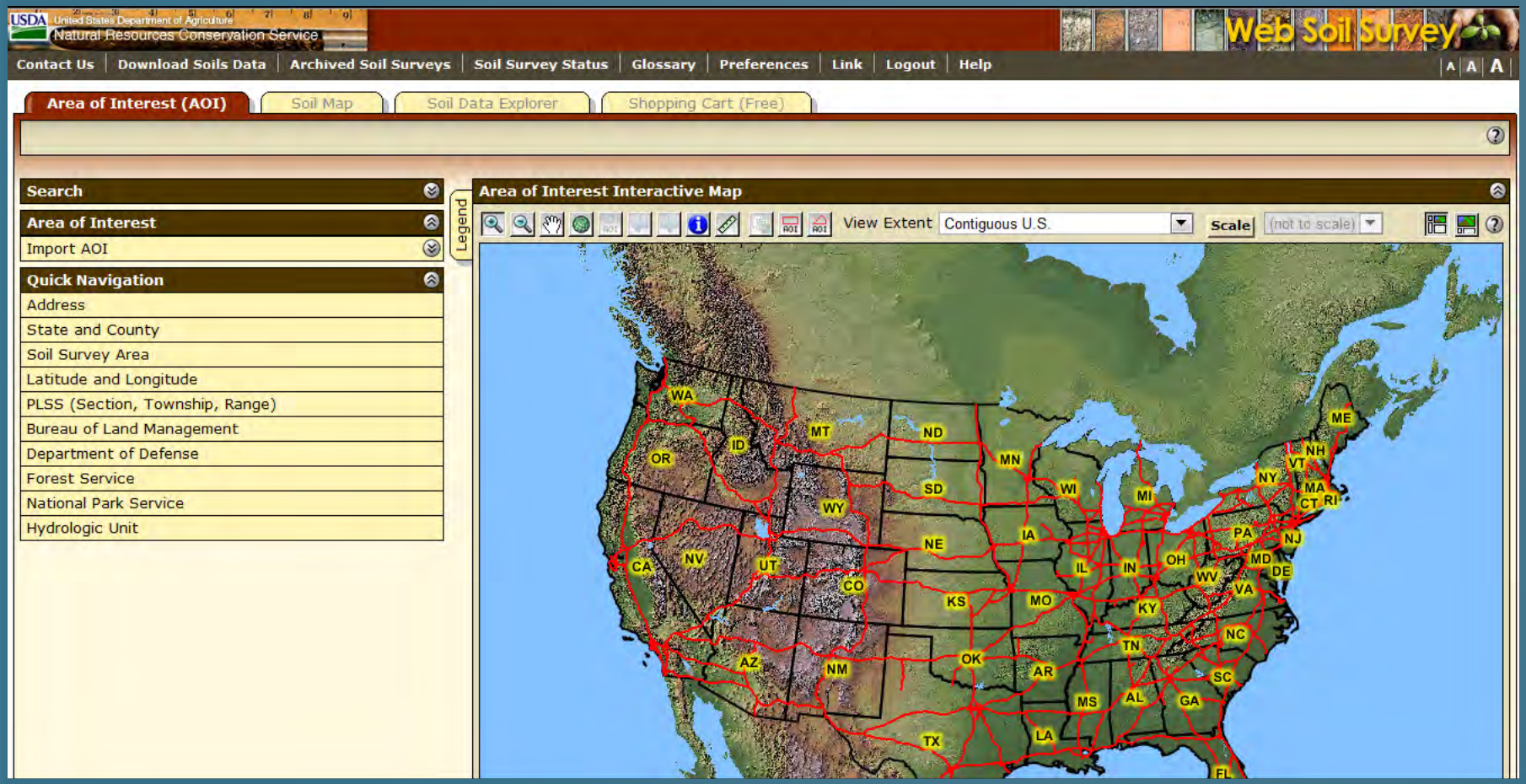
- Reduce tillage
- Retain residue
- Manure
- Compost
- Cover crops

# USDA Soil Survey




http://websoilsurvey.nrcs.usda.gov

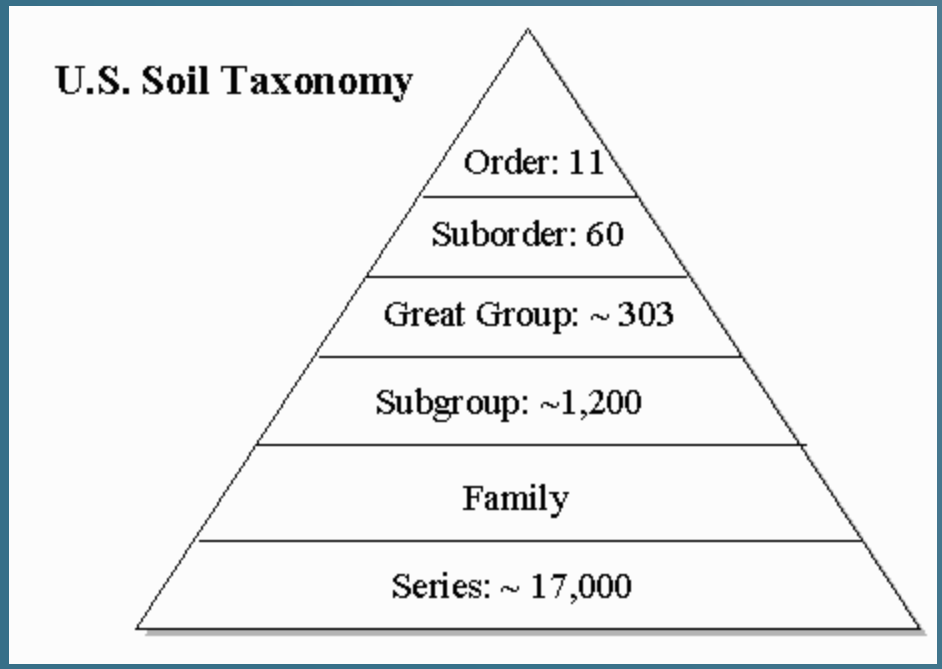
# USDA Soil Survey

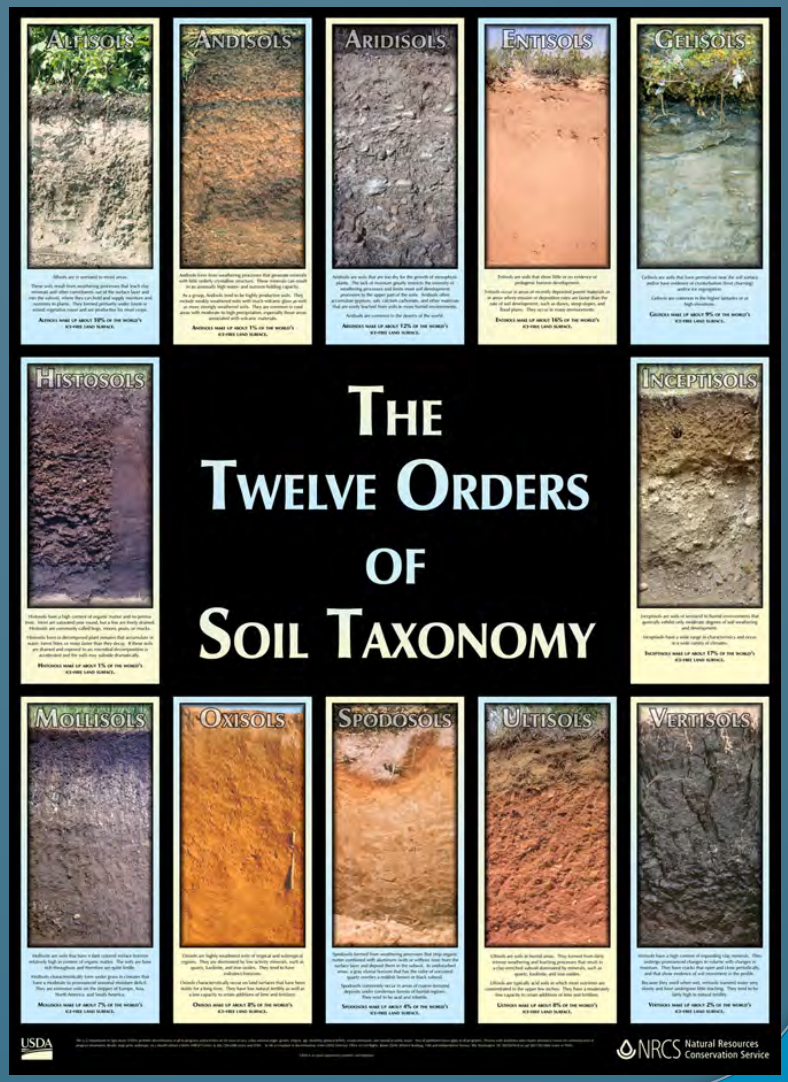



http://websoilsurvey.nrcs.usda.gov

# USDA Soil Survey

- Soil Classification



# USDA Soil Survey

- Family ➔ Series ➔ Map Unit

**Fine, smectitic, mesic Pachic Argixerolls**

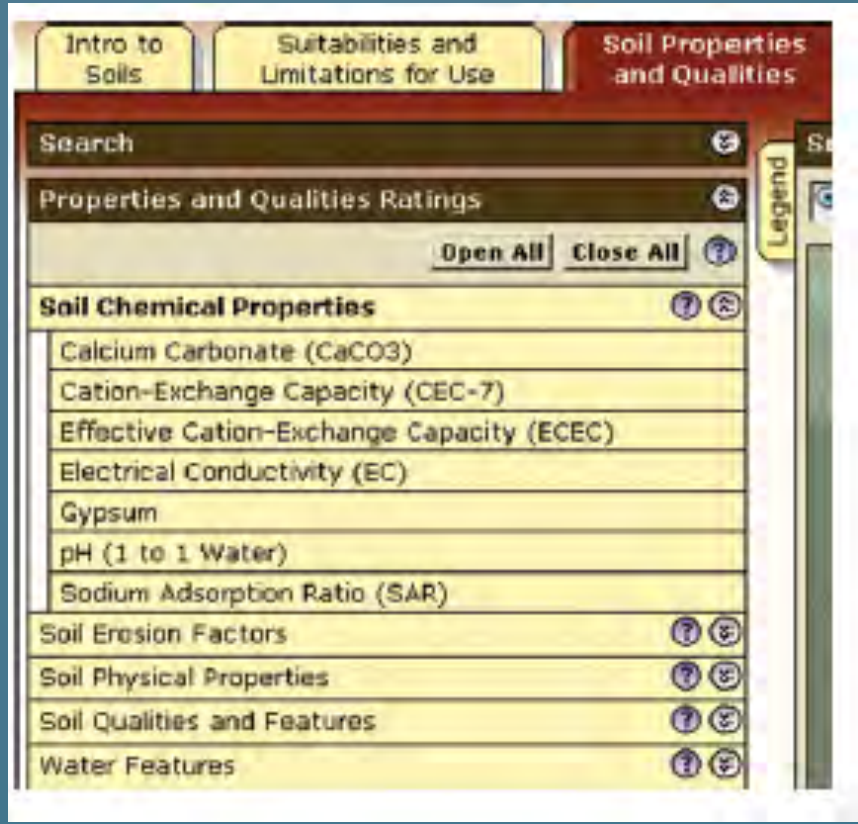
↓

**Gregory**

↓

**76A—Gregory silty clay loam, 0 to 3 percent slopes**

# USDA Soil Survey

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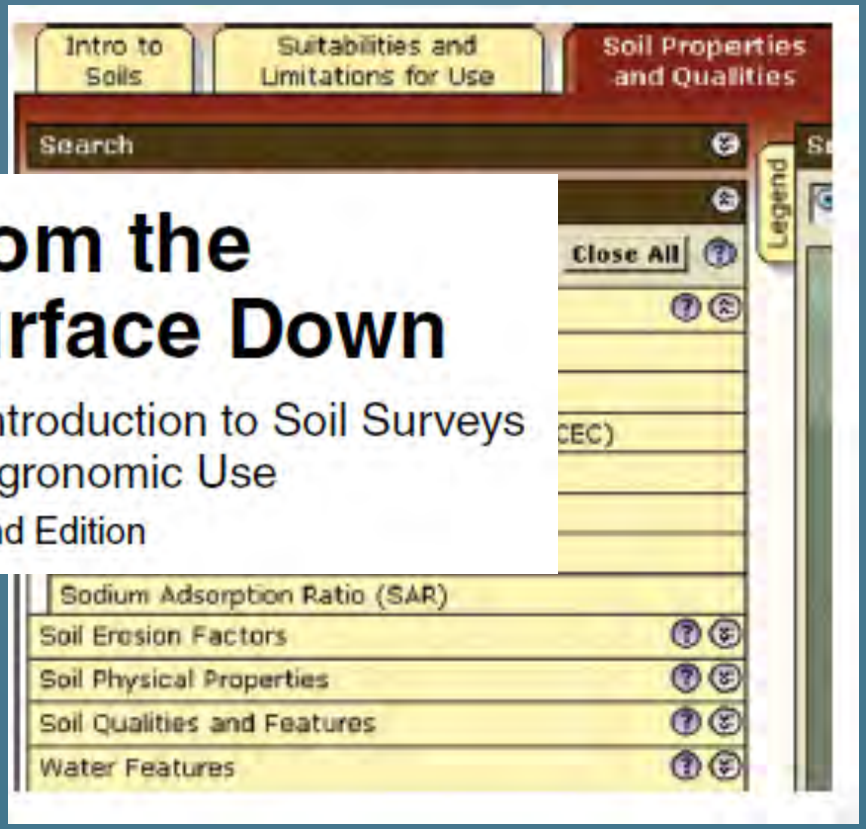
# USDA Soil Survey




USDA United States Department of Agriculture

Natural Resources Conservation Service

**From the Surface Down**

An Introduction to Soil Surveys for Agronomic Use

Second Edition

http://websoilsurvey.nrcs.usda.gov

# Soil Nutrients

Macro-nutrients: C, H, O, N, P, K, S, Mg, and Ca.
Micro nutrients: Fe, Mn, Mo, Cl, Al, B, Zn, Cu.

O, N, P, Mg and S are used for or involved in protein synthesis.

N: part of the chlorophyll complex; involved in carbohydrate utilization

P: essential for energy transfer and storage (ADP-ATP); structural component; involved in maturity.

K: osmotic regulation; energy (ATP); translocation of assimilates; starch synthesis.

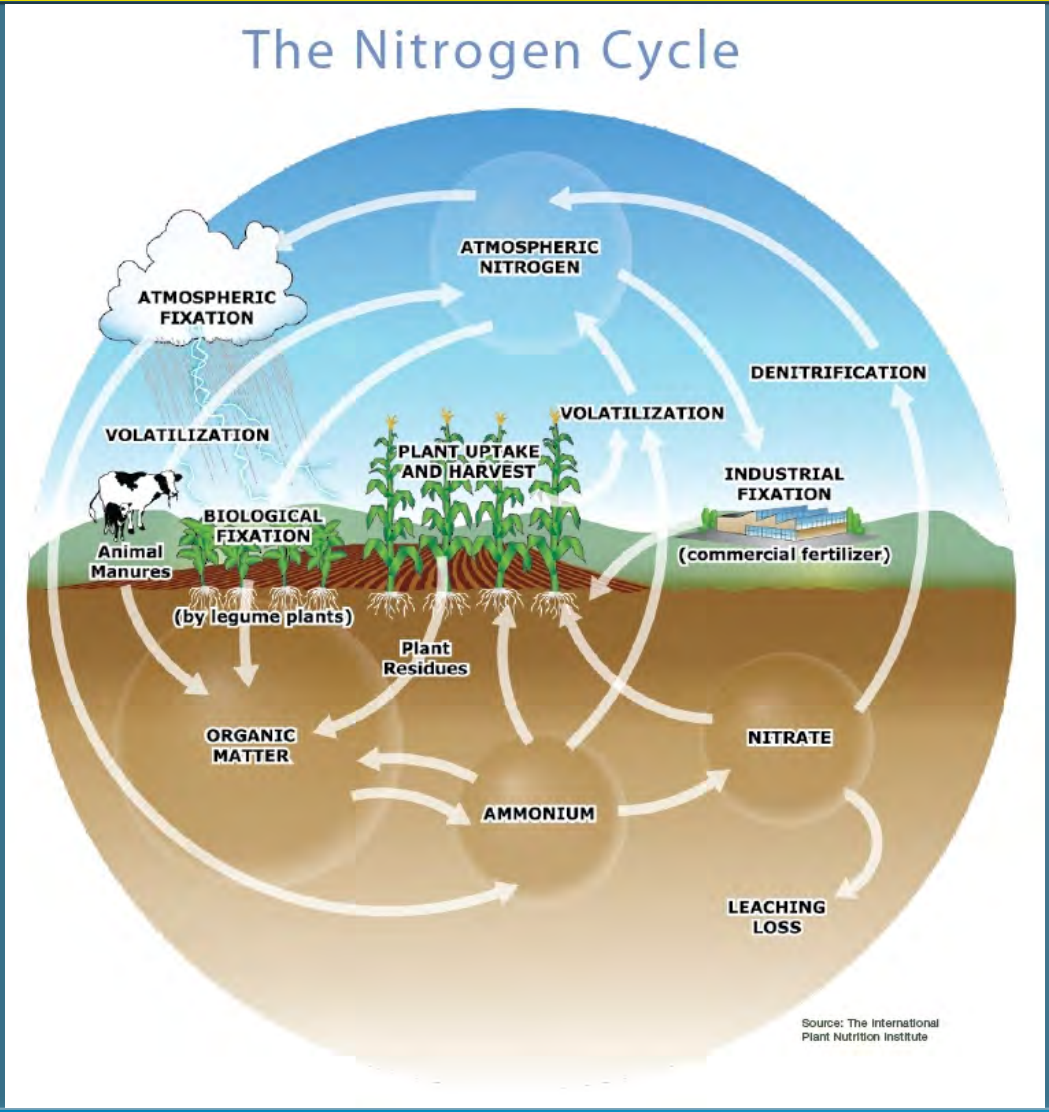
Ca: essential for cell elongation and cell division

Mg: required for chlorophyll synthesis; structural component in ribosomes; involved in many biochemical processes.

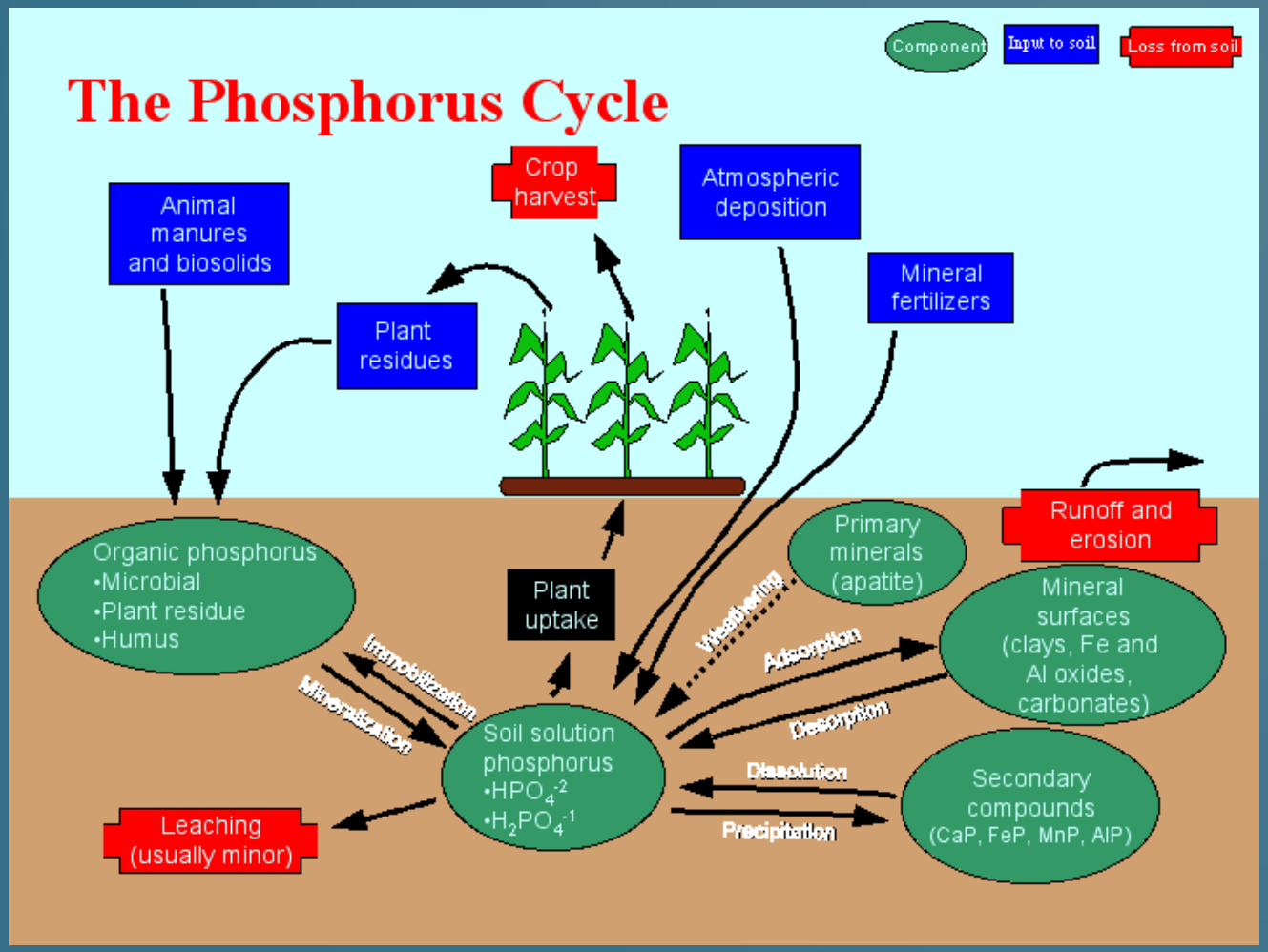
% of S found in plants is present as protein; in chloroplast as ferredoxines

**=> Soil supply and availability of these nutrients?**

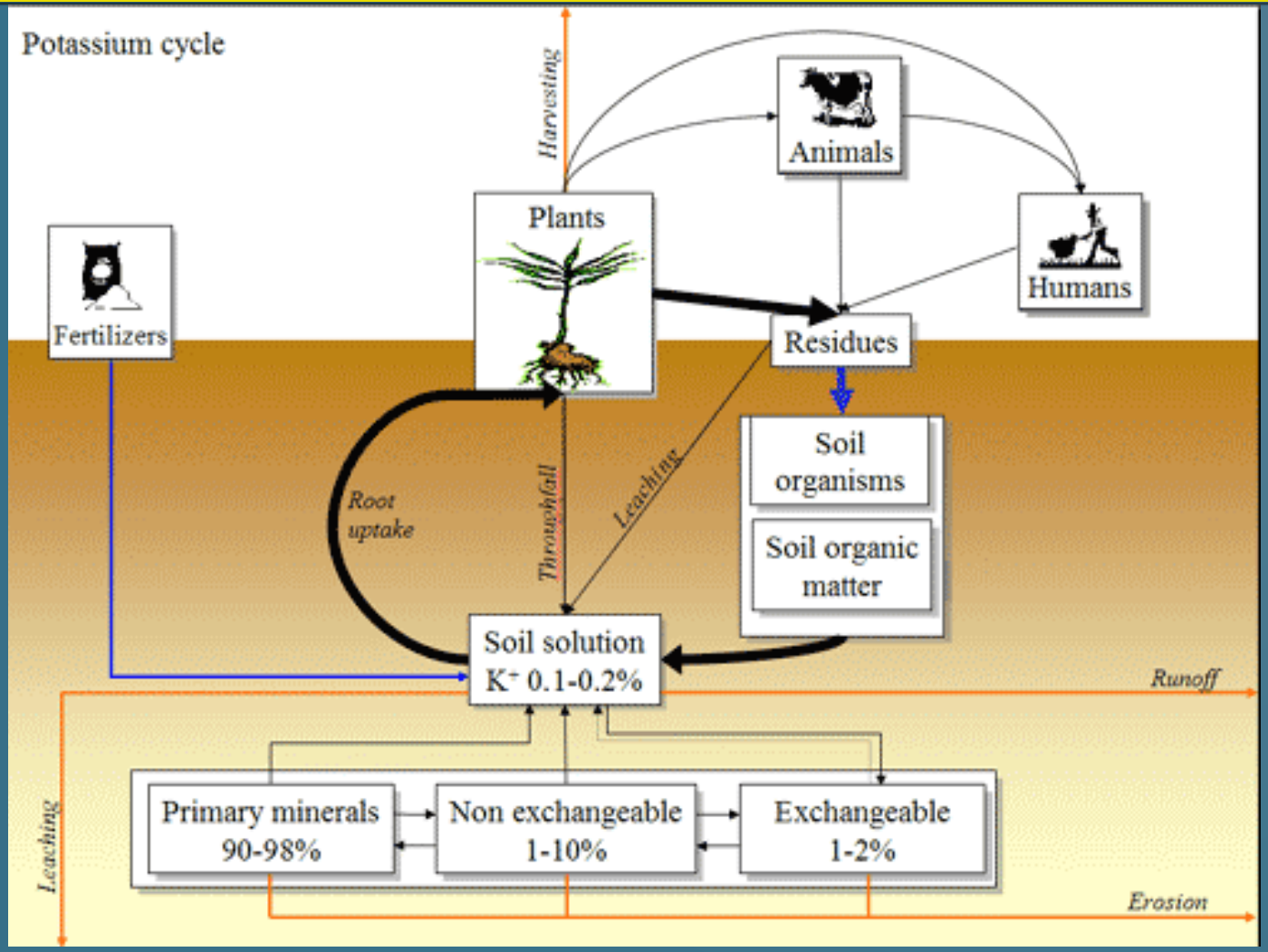
# Soil Nutrients



# Soil Nutrients



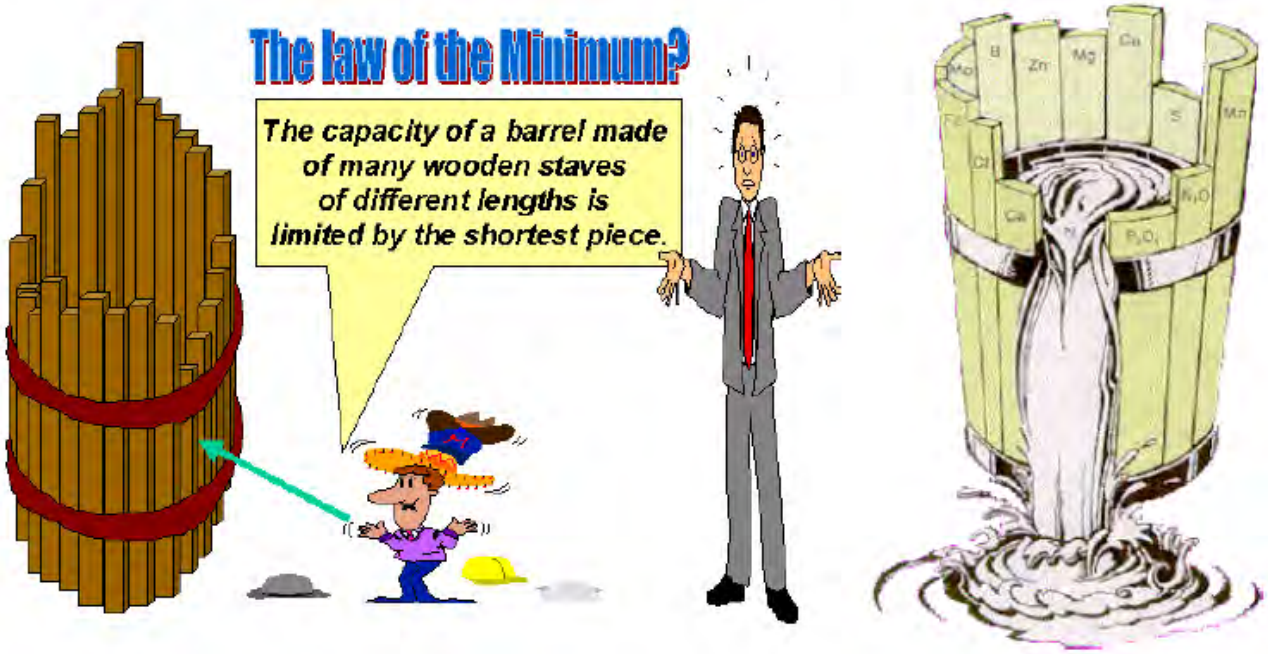
# Soil Nutrients



# Soil Fertility

## Liebig's law

Liebig's law of the minimum states that growth is controlled not by the total of resources available, but by the scarcest resource.



# Nutrient Mobility in Plants

More mobile in plants

- N, P, K, Mg, Cl, S
- symptoms often on older growth (exceptions)

N deficiency tobacco

Less mobile in plants

- Ca, Fe, Mn, Cu, B, Zn, Mo
- symptoms often on new growth (exceptions)

Mn deficiency soybeans

(Mengel & Kirkby 1987)

COURTESY OF NICK ANDREWS

COURTESY OF NICK ANDREWS

# N deficiency

From http://www.pioneer.co.nz/

- Old leaves
- No dead spots
- Yellow veins

# Potassium (K) deficiency

- Old leaves
- Dead spots

Courtesy of Lindsey DuToit

# Iron (Fe) deficiency

From http://www.ent.iastate.edu/ soybeans

- New leaves
- Green veins

COURTESY OF NICK ANDREWS

# Tomato & Corn Mg deficiency

- Old leaves
- No dead spots
- Green veins

Courtesy of Lindsey DuToit

From http://www.soils.wisc.edu/

# Mineral Deficiency Key

- Old leaves → N, P, K, Mg, Mo
  - Dead spots → K, Mo
  - No dead spots → N, P, Mg
    - Green veins → Mg
    - Yellow veins → N
- New leaves → S, Fe, Mn, Cu
  - Green veins → Fe, Mn
  - Yellow veins → S, Cu
- Old & New leaves → Zn
- Terminal Buds → Ca, B

- Late season symptoms can be normal
- Wet, compacted, acidic soil can be the cause
- Ideally control deficiency before symptoms appear
- pH can be the underlying cause of some deficiencies or toxicities

Reddy, T.Y. and Reddi, G.H.S. 1997. Mineral nutrition, manures and fertilizers. In Principles of Agronomy. pp. 204-256. Kalyani Publishers, Ludhiana, India

http://www.plantstress.com/Articles/min_deficiency_i/impact.htm

COURTESY OF NICK ANDREWS

Chemical constraints on plant growth are all related to

Nutrient Availability

Availability by nutrients are determined by

1) Fertilization
2) Soil properties

?

1) Cation exchange capacity (CEC)
2) Anion exchange capacity (AEC)
3) pH
4) Soil organic matter content

# Soil Fertility Evaluation

## With-in season adjustments

- Nutrient Deficiency Symptoms
  - Multiple deficiencies
  - Interactions
  - Other causes
- Plant Analysis – Tissue tests
  - Mature leaves
  - 10-15 plants
  - During peak vegetative growth or reproductive stage
  - Interpret with critical nutrient concentration
  - Useful for perennial plants for baseline nutrient levels
- Chlorophyll meter
  - Correlated with %N in leaf

# Soil Fertility Evaluation

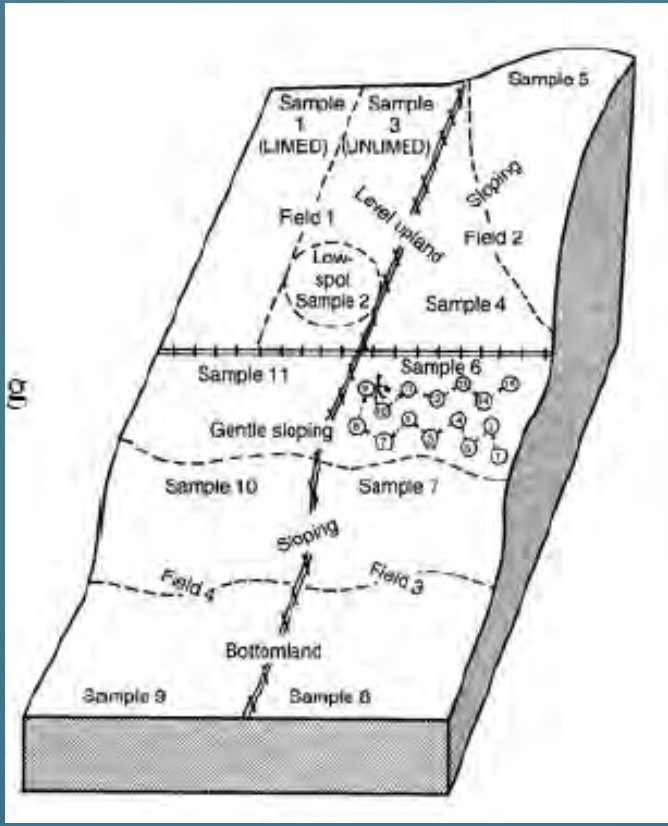
## Soil Testing

- Test soil every 2-3 years in the spring or early summer.
  - Baseline index of nutrient availability
  - Probability of profitable fertilizer or lime response
  - Develop fertilizer or lime recommendations
- Monitor N at least twice/year for a few years.
  - Residual N at end of season checks how you are doing.
- Submit samples to the same lab over time.
- Composite cores per sampling area.
- Sample depth depending on objective:
  - Cropping/Pasture systems – to depth of root activity (6-12 in.)
  - Perennial system with repeated surface fertilizer applications (2-3in.)
  - Orchards – combinations of depths

# Soil Testing

## Sampling

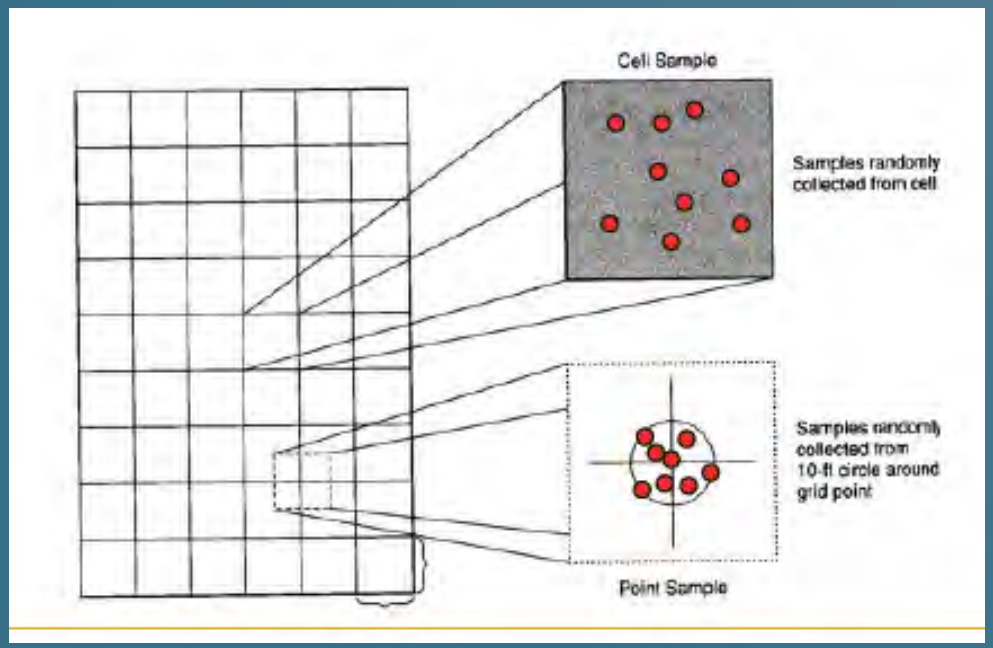
1. Field sample units based on:
   - Soil type
   - Slope
   - Drainage
   - Management
   - 15-40 cores/unit



# Soil Testing

## Sampling

2. Grid sampling
   - 5- 10 samples per cell or grid intersection



EM 8677

NUTRIENT MANAGEMENT guide

EM 8677
Revised June 2006

# Laboratories Serving Oregon

## Soil, Water, Plant Tissue, and Feed Analysis

J. Hart

**Most useful analyses (Western OR)**

- Organic matter
- pH (acidity) & SMP buffer (Shoemaker-McLean-Pratt )
- $NO_3$ (nitrate): use 12” deep samples
- P (phosphorous) – Weak Bray
- K (potassium)
- Ca (calcium)
- Mg (magnesium)
- B (boron) & Zn (zinc)

COURTESY NICK ANDREWS

# Soil Testing

## A & L WESTERN AGRICULTURAL LABORATORIES

1311 WOODLAND AVE #1 • MODESTO, CALIFORNIA 95351 • (209) 529-4080 • FAX (209) 529-4736

REPORT NUMBER: 11-019-013

CLIENT NO: 3127-M

SEND TO: GRANGE CO-OP
P.O. BOX 3637
CENTRAL POINT, OR 97502-

SUBMITTED BY: VIC ECCLESTON

GROWER: OSU EXT-SHAINA BRONSTEIN

DATE OF REPORT: 01/21/11

## SOIL ANALYSIS REPORT

PAGE: 1

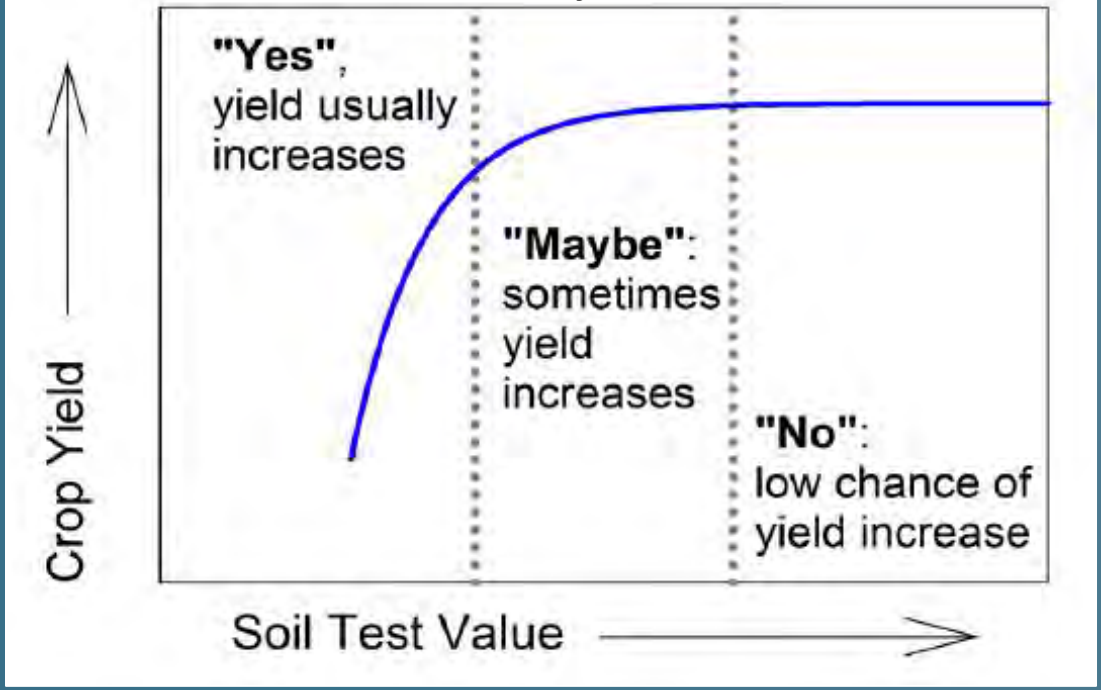
| SAMPLE ID | LAB NUMBER | Organic Matter | | Phosphorus | | Potassium | Magnesium | Calcium | Sodium | pH | | Hydrogen | Cation Exchange Capacity | PERCENT CATION SATURATION (COMPUTED) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | * % Rating | ** ENR lbs/A | P1 (Weak Bray) **** * ppm | $NaHCO_3$-P (Olsen Method) **** * ppm | K ***** * ppm | Mg *** * ppm | Ca *** * ppm | Na *** * ppm | Soil pH | Buffer Index | H meq/100g | C.E.C. meq/100g | K % | Mg % | Ca % | H % | Na % |
| 1 | 50398 | 2.9M | 89 | 59VH | 25** | 116M | 242M | 1919M | 32VL | 5.9 | 6.3 | 2.5 | 14.5 | 2.0 | 13.8 | 66.2 | 17.0 | 0.9 |

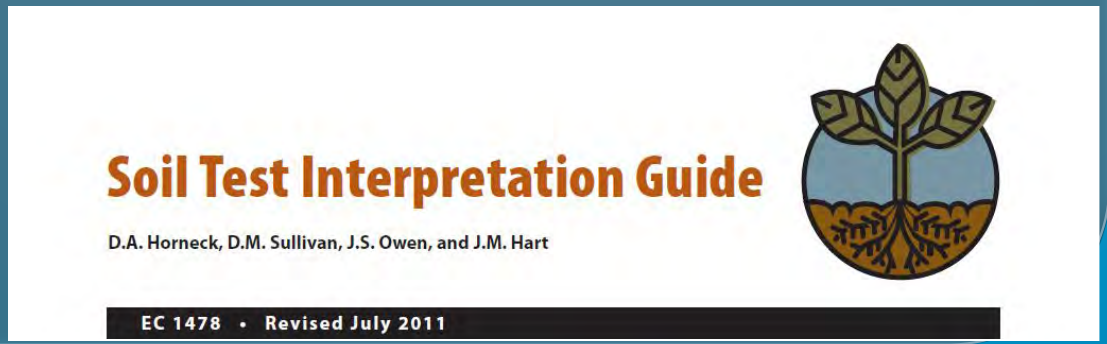
** NaHCO3-P unreliable at this soil pH

| SAMPLE NUMBER | Nitrogen $NO_3$-N ppm | Sulfur $SO_4$-S ppm | Zinc Zn ppm | Manganese Mn ppm | Iron Fe ppm | Copper Cu ppm | Boron B ppm | Excess Lime Rating | Soluble Salts mmhos/cm | Chloride Cl ppm | | PARTICLE SIZE ANALYSIS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | SAND % | SILT % | CLAY % | SOIL TEXTURE |
| 1 | 1VL | 2VL | 1.5M | 28H | 78VH | 2.0H | 0.3VL | L | 0.2VL | | | | | | |

# Soil Test Interpretation

Courtesy Dan Sullivan, EC 1478




COURTESY NICK ANDREWS

# Soil Test Interpretation

## Pastures

*Western Oregon and Western Washington*

*J. Hart, G. Pirelli, L. Cannon, and S. Fransen*

*Table 1.—Lime application rates for grass or white clover-grass pastures.*

| If the SMP buffer test for lime is: | Apply this amount of lime (t/a): |
|---|---|
| under 5.5 | 4–5 |
| 5.5–5.8 | 3–4 |
| 5.8–6.1 | 2–3 |
| 6.1–6.5 | 1–2 |
| over 6.5 | 0–1 |

*Table 3.—Potassium application rates for pastures.*

| If the soil test for K is (ppm) | Apply this amount of potash ($K_2O$) (lb/a) |
|---|---|
| 0–125 | 100–150 |
| 125–200 | 70–100 |
| over 200 | None—Watch soil tests for K depletion |

*Table 2.—Phosphorus application rates for pastures.*

| If the Bray soil test for P is (ppm) | Apply this amount of phosphate ($P_2O_5$) (lb/a) |
|---|---|
| 0–15 | 60–100 |
| 15–30 | 0–60 |
| over 30 | 0 |

# Soil Test Interpretation

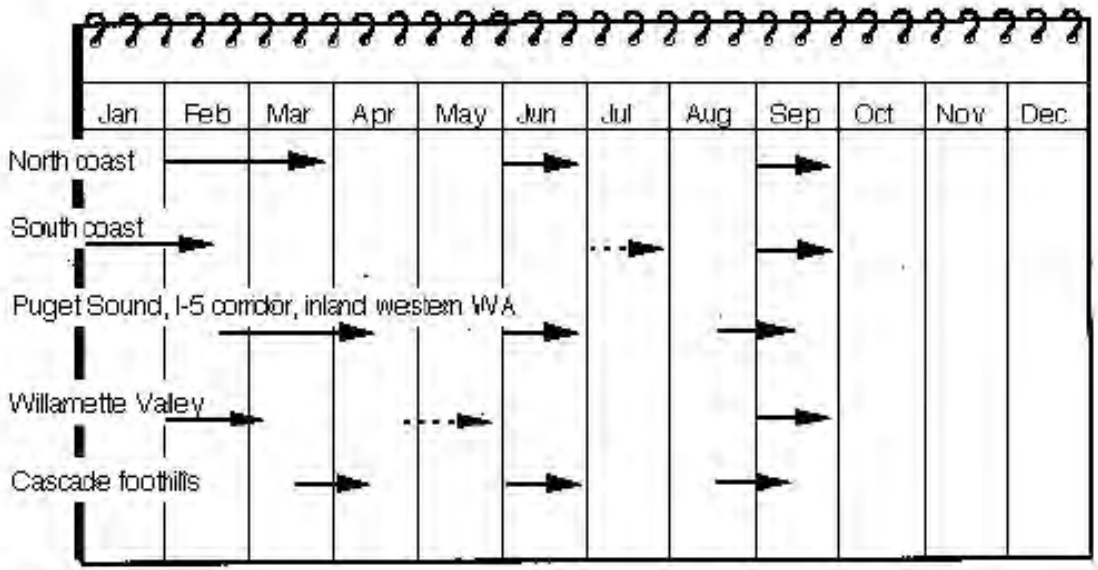
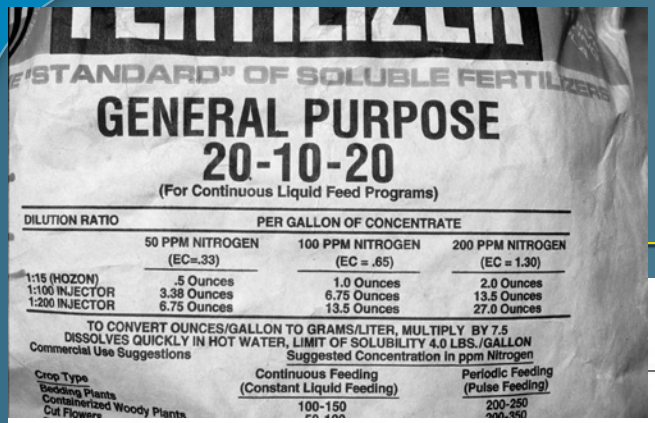



*Figure 2.*—Pasture nitrogen application calendar. Apply 50 to 60 lb N/a each time a solid arrow appears for your region. Additional applications for irrigated pastures are indicated by dotted lines. See nitrogen section in text for an explanation.

# Fertilizer Choice




FERTILIZERguide

FG 52
Reprinted May 1998

## Fertilizer and Lime Materials

J. Hart

N - P – K

%N, %$P_2O_5$, %$K_2O$

- Solid
- Fluid
- Slow-release
- Blended

- Salt Effects
- Acidification

*Table 1.*—Acidifying potential and salt index for selected fertilizers.

| Fertilizer material | Grade | Acidity* | Salt index |
|---|---|---|---|
| Anhydrous ammonia | 82-0-0 | 140 | 47.1 |
| Sodium nitrate | 16-0-0 | — | 100 |
| Ammonium nitrate | 34-0-0 | 62 | 105 |
| Ammonium sulfate | 21-0-0 | 110 | 69 |
| Urea | 46-0-0 | 71 | 75 |
| Monoammonium phosphate | 11-48-0 | 58 | 27 |
| Ammonium-phosphate-sulfate | 16-20-0 | 88 | |
| Triple super phosphate | 0-45-0 | 0 | 10 |
| Potassium chloride | 0-0-60 | 0 | 116 |
| Potassium sulfate | 0-0-50 | 0 | 46 |

# Fertilizer Choice

- Organic Fertilizers

| Specialty Products include | | |
|---|---|---|
| Fish meals | Alfalfa meal | Fish bone meal |
| Soybean meal | Blood meal | Meat & bone meal |
| Corn gluten meal | Kelp meal | Bone meal |
| Feather meal | Sol. Seaweed Extract | Seabird guano |

Compost
Manure
Green Manures

# ORGANIC AMENDMENTS

## HOT STUFF

High N (>2.5%), high N availability

Raw manure, blood meal, feather meal

Little contribution to organic matter, use sparingly, do not exceed N and P requirements

## COOL STUFF

Medium N(1.5-2.5%), low N availability

Compost, leaf mulch and cover crops

Allow time to decompose and add in large amounts

## WOODY STUFF

Low N (<1.5%), 0 or negative N

Straw, bark and sawdust

Can immobilize N, use as mulch or long before planting a crop

COURTESY NICK ANDREWS

# Organic equilibrium

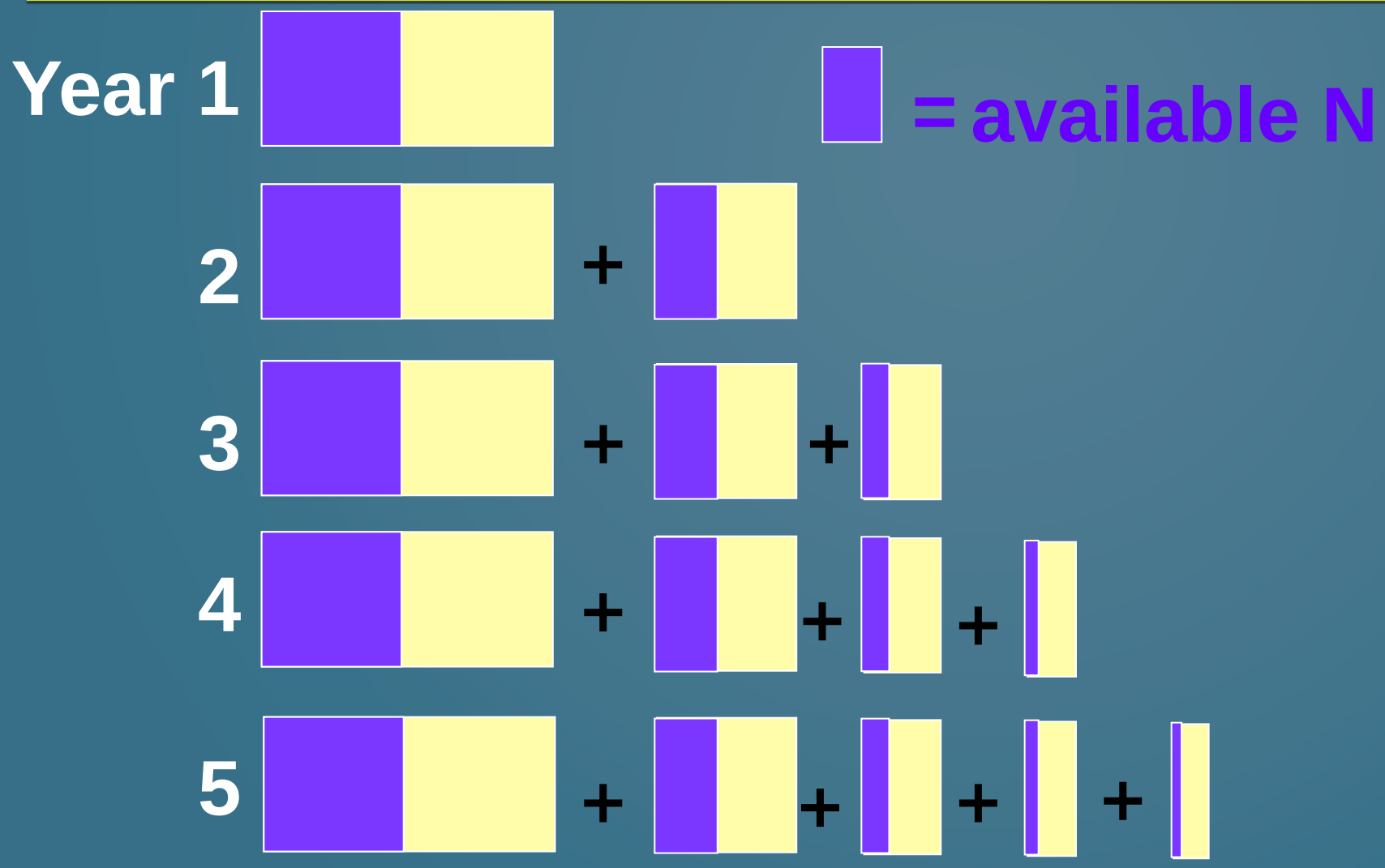
- Organic C&N accumulate over time
- Soil fertility (N mineralization) increases over time

MAINTENANCE PHASE

SOIL BUILDING PHASE
2-4 years or more

COURTESY NICK ANDREWS

# Cumulative available N from an organic source




Courtesy of Dan Sullivan OSU Crop & Soil Science

# Can you afford to rely on fertilizer alone?

| Product | $/ton | Total % N | Est'd % PAN | $/lb PAN | $/100lbs PAN |
|---|---|---|---|---|---|
| Urea (not organic) | $500 | 46% | 100% | $0.54 | $54 |
| | $1000 | 46% | 100% | $1.09 | $109 |
| Processed chicken manure | $200 | 4% | 50% | $5.00 | $500 |
| | $250 | 4% | 50% | $6.25 | $625 |
| Legume cover crops | **$1-3.00/lb PAN** All costs attributed to PAN | | | **$0.50-$1.50/lb PAN** Seed and inoculum only | |

COURTESY NICK ANDREWS

# Cover Crops

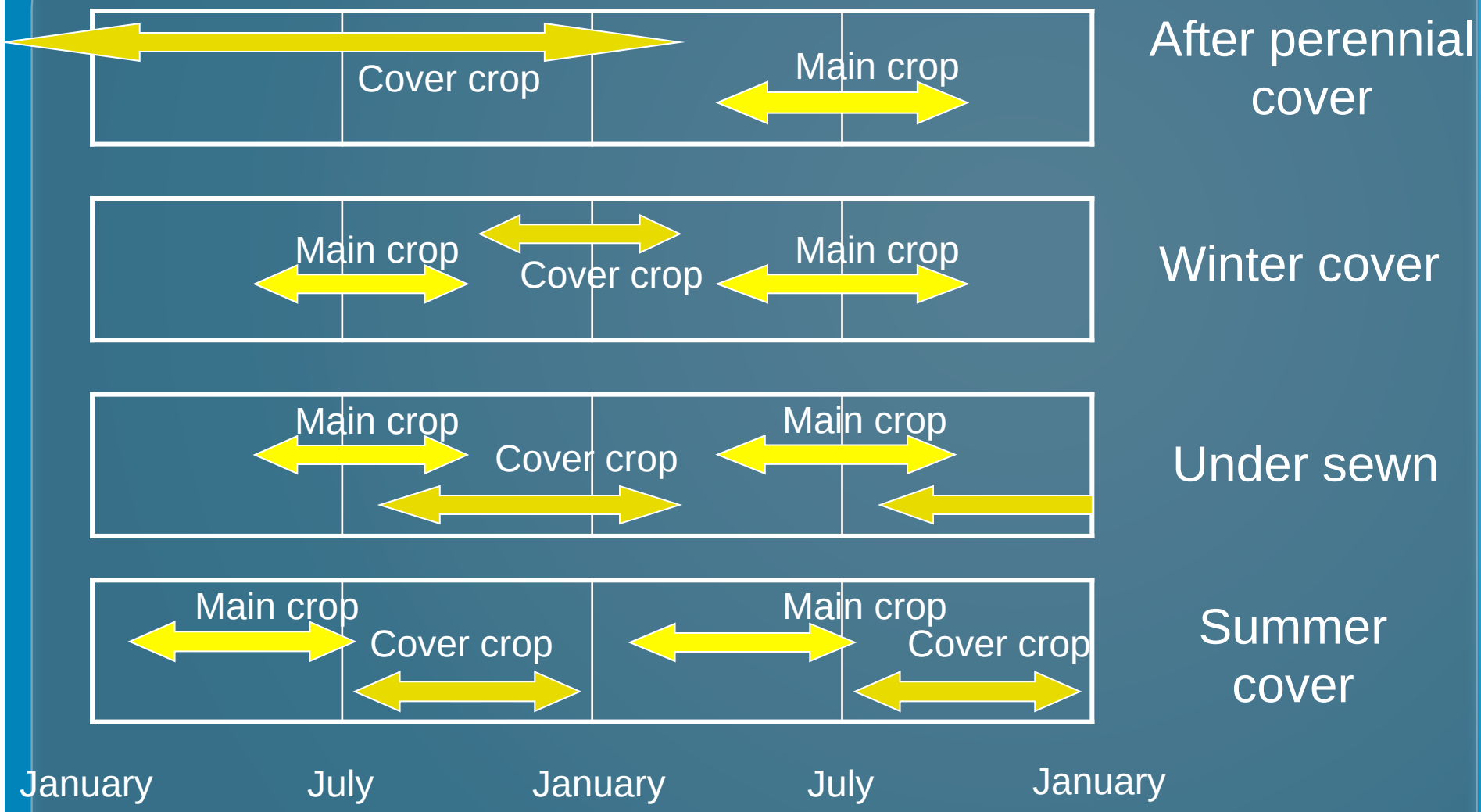
- Reduce erosion
- Protect soil structure
- Increase soil organic matter
- Energy efficient N fixation
- Supply N without increasing soil P
- Scavenge residual N
- Reduce weed pressure
- Provide nectar & pollen for beneficial insects
- Management challenges

COURTESY NICK ANDREWS

# Cover Crop Species

- **Legumes:** clovers, vetches, peas, beans
  - Fix atmospheric N with *Rhizobia*
  - Put on most biomass in the spring
  - Provide flowers
- **Grasses:** oats, rye, wheat, triticale, annual ryegrass
  - Scavenge soil N in the fall
  - Provide C and build O.M.
- **Forbs:** buckwheat, phacelia, mustards
  - Scavenge soil N
  - Provide C and build O.M.
  - Provide flowers

# Four ways to time cover crops

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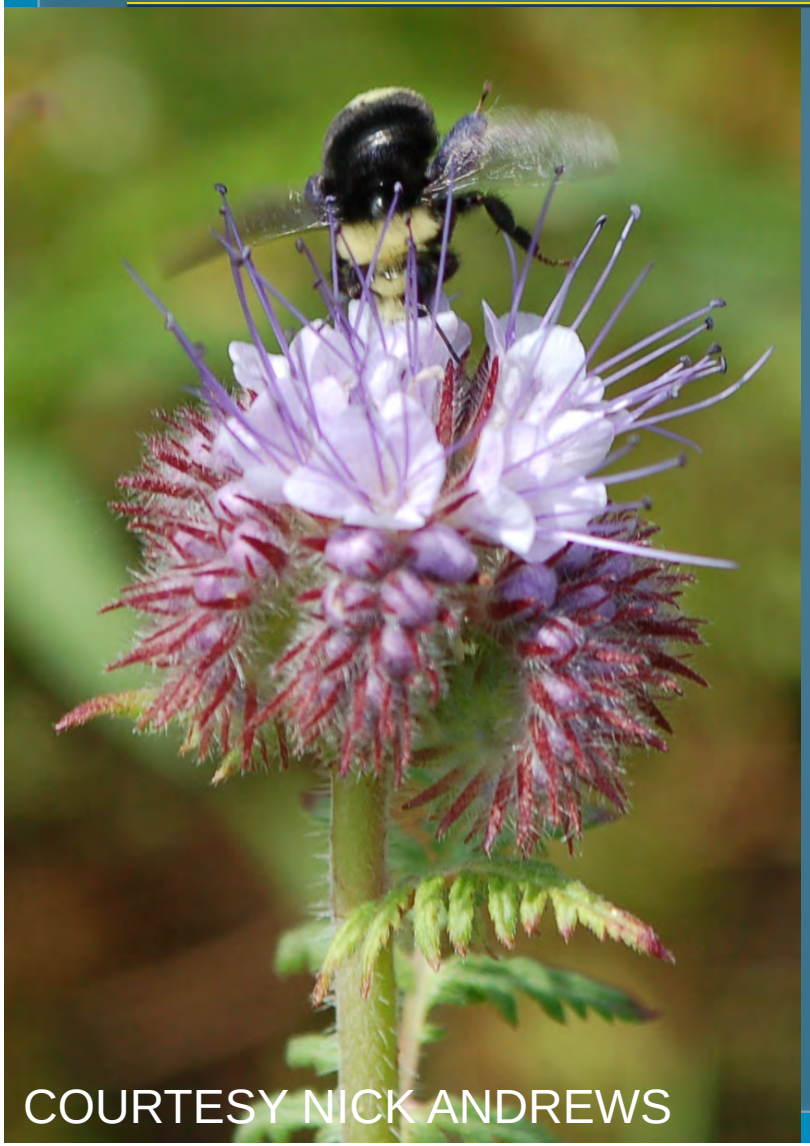
Adapted from Building Soils for Better Crops, F. Magdoff & H van Ess,

# Phacelia tanacetifolia
# native - borage fam.



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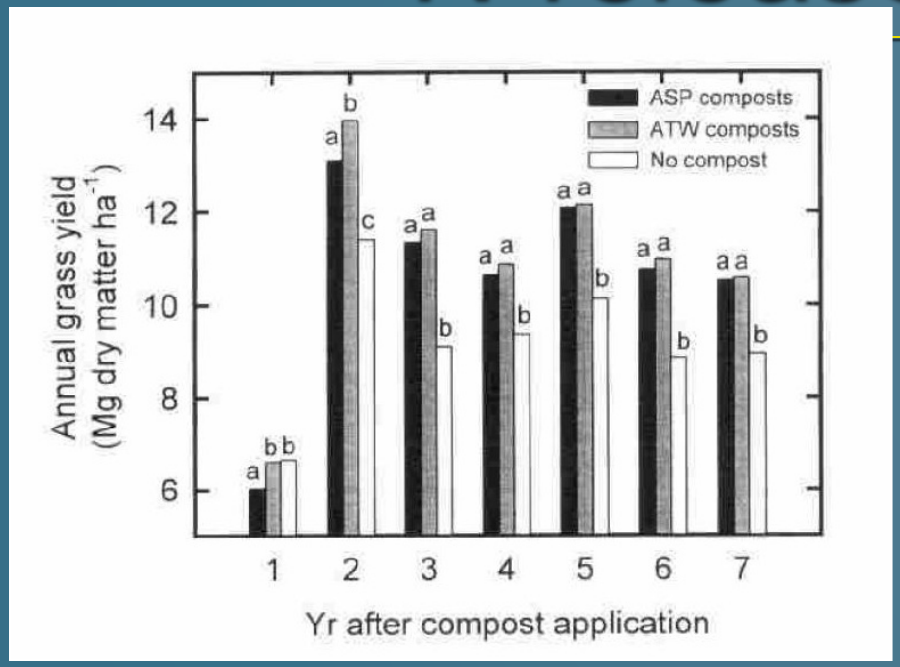
Oversewn red clover – planted late June/ early July just before last cultivation and canopy closed. Photo Oct 17th, 2006
COURTESY NICK ANDREWS

# Using Compost

- Mature compost is a stable organic material that builds the active portion of organic matter (humus)
- Compost characteristics vary widely:
  - Stability
  - Particle size
  - Nutrient content and pH
  - Weed seeds and other contaminants
  - Microbial activity, etc.
- Nitrogen release is slow but steady and can accumulate over time

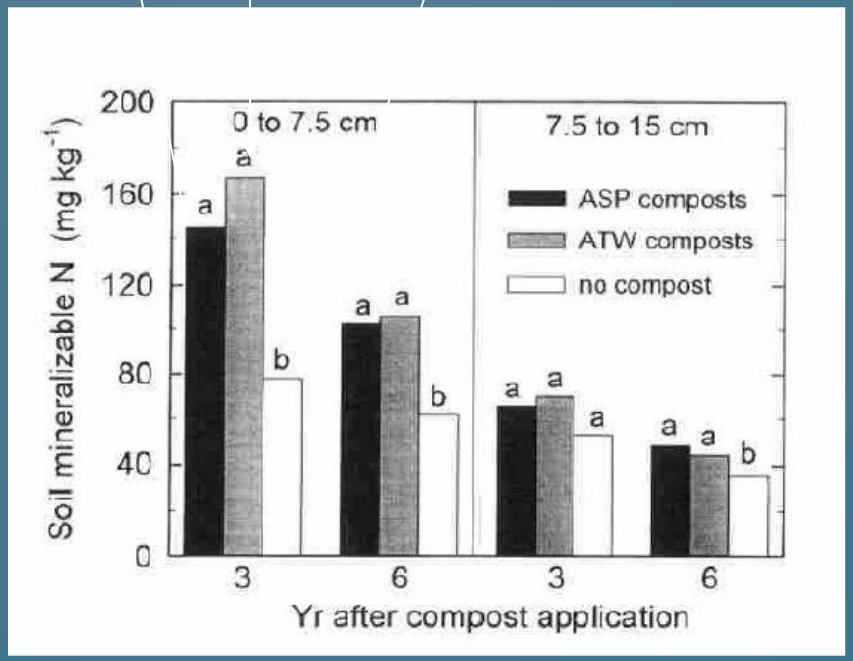
# N-release from compost




Static pile

Control

Windrow




- Releases 3 to 5 % of total N in plant-available forms in Years 2, 3, 4, 5....
- Approx 20 % of compost total N recovered by perennial grass crop in 7-year field study

SLIDE COURTESY NICK ANDREWS

Sullivan et al. (2003). Compost Science & Utilization, **11**(3): 265-275

# Fertilizer Choice Manure

**Table 10-15** Approximate Dry Matter and Nutrient Composition of Selected Animal Manure

| Type of Livestock | Waste Handling System | Dry Matter (%) | Nutrient (lbs/ton) N Available* | N Total* | $P_2O_5$ | $K_2O$ |
|---|---|---|---|---|---|---|
| | **Solid Handling Systems*** | | | | | |
| Swine | Without bedding | 18 | 6 | 10 | 9 | 8 |
| | With bedding | 18 | 5 | 8 | 7 | 7 |
| Beef cattle | Without bedding | 15 | 4 | 11 | 7 | 10 |
| | With bedding | 50 | 8 | 21 | 18 | 26 |
| Dairy cattle | Without bedding | 18 | 4 | 9 | 4 | 10 |
| | With bedding | 21 | 5 | 9 | 4 | 10 |
| Poultry | Without litter | 45 | 26 | 33 | 48 | 34 |
| | With litter | 75 | 36 | 56 | 45 | 34 |
| | Deep pit (compost) | 76 | 44 | 68 | 64 | 45 |
| | **Liquid Handling Systems*** | | | | | |
| Swine | Liquid pit | 4 | 20 | 36 | 27 | 19.0 |
| | Oxidation ditch | 2.5 | 12 | 24 | 27 | 19.0 |
| | Lagoon | 1 | 3 | 4 | 2 | 0.4 |
| Beef cattle | Liquid pit | 11 | 24 | 40 | 27 | 34.0 |
| | Oxidation ditch | 3 | 16 | 28 | 18 | 29.0 |
| | Lagoon | 1 | 2 | 4 | 9 | 5.0 |
| Dairy cattle | Liquid pit | 8 | 12 | 24 | 18 | 29.0 |
| | Lagoon | 1 | 2.5 | 4 | 4 | 5.0 |
| Poultry | Liquid pit | 13 | 64 | 80 | 36 | 96.0 |

# Fertilizer Choice
# Manure

- N-P-K
  - Contents vary widely .
- Test manure for nutrient content
- Good practices to avoid leaching and volatilization.
- Concerns
  - Heavy Metals
  - Salts
  - Nutrient Losses

The results of this study underscore the importance of these CCP as sources of *Phytophthora* contamination within nurseries. It also highlights BMP that effectively mitigate the risk presented by each CCP. Although all four CCP are important, directing resources at irrigation water and soil substrate may provide the greatest opportunity for risk mitigation in nurseries with few resources.

**Prepared by:** Nancy K. Osterbauer, PhD, Plant Health Program Supervisor
**Contact information:** 503-986-4620
nosterbauer@oda.state.or.us

# ODA-S11 Controlling Orchards Pests on Non-Commercial Hosts in the Columbia Gorge

*Attachment 1*: Backyard Fruit Tree Program flyer
*Attachment 2*: Article, *The Dalles Chronicle*
*Attachment 3*: Article, *The Dalles Chronicle & Hood River News*

# IT'S NOT JUST A GOOD IDEA

In Hood River County, controlling fruit pests is not only the right thing to do, it's the law. Hood River County Amended Ordinance #263 requires that fruit tree diseases and pests be controlled on host plants. If they are not, the County may require destruction of the crop or trees at the owner's expense.

Columbia Gorge fruit growers

**541-387-4769**

Call us for more information about the hazards of backyard fruit trees, about removing fruiting trees, about establishing and maintaining an effective spray and pest control program, or to register for the Backyard Fruit Tree removal program.

Oregon Department of Agriculture

This project is being funded by a Specialty Crop Grant from the Oregon Department of Agriculture

022011

"Backyard Fruit Tree Program"
Columbia Gorge Fruit Growers
PO Box 168
Odell, OR 97044

PRSRT STD
U.S. POSTAGE
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ODELL, OR
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# "Backyard Fruit Tree Program"

## Columbia Gorge Fruit Growers

## Help Keep Your County's Fruit Industry Healthy

Fruit trees in your yard may harbor insects and diseases that can cause damage or increase the need for pesticide spray in commercial orchards.

## PRESERVING A WAY OF LIFE

Orchards in the Mid-Columbia area have a long history of contributing to the local economy and rural way of life. The first fruit trees were planted in 1854; the first commercial orchard in 1876. The region's rich soil and favorable climate have made it one of the world's finest fruit-growing regions. The fruit industry is very important in our area's economy, sustaining families and communities.

Fruit growers have adopted pest management programs that replace toxic pesticides with non-chemical and reduced risk approaches for controlling damaging pests in pears, apples and cherries. But these new "soft" pest management programs open commercial orchards to potential attack from pests multiplying on nearby unmanaged trees. Growers must produce pest-free fruit in order to compete in national and international markets. Pest damage makes fruit unmarketable, causing economic loss to growers. Some of the pests which may spread from neglected trees to commercial orchards are codling moth, cherry fruit fly, fire blight, pear and apple scab and spotted wing drosophila.

We can all work together to assure that local fruit continues to be of high quality. A healthy fruit industry will help preserve the economy and keep your community the beautiful and special place that it is.

## WHAT CAN I DO?

**Property owners with fruit trees can take one of the following steps to eliminate pests:**

- Remove unmanaged pear, apple and cherry trees.

**If you do not want to remove your trees:**

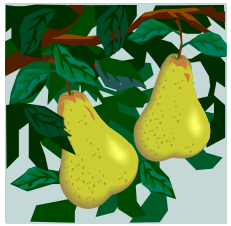
- Remove and destroy all fruit on these host trees as soon as it forms.

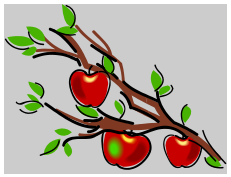
OR

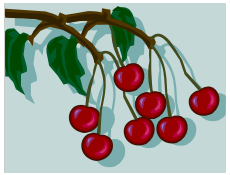
- Manage your trees to prevent pest buildup and spread.

Although it is important to control pests and diseases on all fruit trees, we are concentrating our efforts on apple, pear and cherry trees. Controlling pests such as codling moth, cherry fruit fly and spotted wing drosophila on home fruit trees may require numerous applications of pesticides during each growing season. Application timing is critical to match controls to the presence of vulnerable stages of the pest, adding to the difficulty of control.

## DO YOU WANT TO REMOVE YOUR TREES?







Growing your own fruit can be rewarding, but pruning, pest management and tree maintenance take a lot of time and hard work. Sometimes it's easier to purchase clean, healthy fruit from stores or local vendors.

If you are willing to remove your pear, apple or cherry trees, call the Columbia Gorge Fruit Grower office and register for our Backyard Fruit Tree Program and we will send you a reward of $25 for each tree.

## DO YOU NEED INFORMATION ON PESTICIDE SPRAYING?

Call your local OSU Extension office for an informational brochure and a schedule of tree fruit workshops.

Wasco County 541-296-5494
Hood River County 541-386-3343

# Care for or remove fruit trees

**Extension Cord**

**LYNN LONG**

Early March is the time of year that I set aside to prune my summer blooming plants and fruit trees. I was very glad this year that I did not jump the gun and prune my plants in mid-February. The cold temperatures that we experienced a few weeks ago were enough to kill newly pruned branches. For this reason I always wait to prune until after the chance of extremely cold weather has passed, which is usually early March.

Last weekend I pruned my 50 roses and three of my smaller fruit trees. That means that I have three apples, one nectarine and three fig trees left. Trying to find a rain free period on the weekends this time of year can be a challenge. Fortunately, all my trees are on dwarfing rootstocks, so the trees are relatively small and manageable.

Once I finish pruning then I need to start thinking about pest management. Actually, the nectarine needs to be sprayed up to three times during the winter to reduce the chance of peach leaf curl. It's a good idea to apply a dormant spray on my apples and pears in order to reduce the potential for aphids and other pests that show up during the growing season.

I apply fertilizer to my fruit trees only after the leaves come out. Prior to leaf emergence the plants are not able to take up the nitrogen and utilize it to produce the new growth. Shortly after the leaves emerge it's time think about pest management again. Apples and pears are susceptible to codling moth infestation. Codling moth larvae feed inside the fruit and can spoil many of the fruit on the tree if not properly managed. Multiple insecticide applications are needed throughout the growing season to control this damaging pest.

Several insecticide applications are also needed to control cherry fruit flies. Usually by late May the cherry fruit fly has emerged and a weekly control program needs to begin and continue through harvest. Last year, a new pest, the spotted wing Drosophila arrived, potentially causing damage to cherries, apricots, peaches and even figs.

Finally by mid-summer I begin to harvest my fruit trees. I must admit that by the time harvest rolls around I'm wondering if the time and effort in raising the fruit is worth the effort. How much easier would it have been to go down to the local store and purchase those apples, pears or cherries?

If you have fruit trees and have felt this same way when you see those wormy apples after diligently spraying them all season, then you might be interested in a new program sponsored by the Columbia Gorge Fruit Growers (CGFG). The CGFG is an association of commercial fruit producers here in the Mid-Columbia. Last fall they received a grant from the Oregon Department of Agriculture to encourage homeowners to remove fruit trees that they are no longer interested in maintaining, or have become too burdensome to keep.

If you are willing to remove your pear, apple or cherry trees, the CGFG is willing to send you $25 for each tree that you remove. Call the CGFG office and register for their Backyard Fruit Tree Program at 541-387-4769 and they will send you a reward of $25 for each tree that you remove.

Not only will you be relieving yourself of a burden but you will help protect the very important commercial tree fruit industry that we have here in the Mid-Columbia.

Commercial fruit growers have adopted pest management programs that replace toxic pesticides with non-chemical and reduced risk approaches for controlling damaging pests in pears, apples and cherries. But these new "soft" pest management programs open commercial orchards to potential attack from pests multiplying on home grown fruit trees. Growers must produce pest free fruit in order to compete in national and international markets. Pest damage makes fruit unmarketable, causing economic loss to family farms and the economy of the entire region. Some of the pests which may spread from neglected trees to commercial orchards are codling moth, cherry fruit fly, fire blight, pear and apple scab and spotted wing Drosophila.

We can all work together to assure that local fruit continues to be of high quality. A healthy fruit industry will help preserve the economy and keep our community the beautiful and special place that it is.

*Lynn Long is an Oregon State University Extension horticulturist.*

PROPERTY OWNERS tired of maintaining their backyard fruit trees now have a monetary incentive to remove them through a program sponsored by Columbia Gorge Fruit Growers. File photo

**Prime Waterfront Commercial Space Now Available**

Prime space is now available in the second commercial phase of

FOR COMPLETE LEASING INFORMATION,

# Backyard fruit tree program

By Steve Castagnoli
OSU Extension Horticulturist
**for Home & Garden**

The Columbia Gorge Fruit Growers have expanded their Backyard Fruit Tree Program to include Wasco County in addition to Hood River County.

The program promotes voluntary removal of unwanted fruit trees, as well as improved control of pests on remaining fruit trees. The short-term goal of the program is to eliminate the spread of pests from unmanaged trees to commercial orchards. The ultimate goal is to reduce the use of pesticides in local orchards.

The impact of unmanaged trees has become more significant in recent years because many orchardists are using pest management programs based on non-chemical controls such as pheromone confusion or "softer" pest management programs that use more selective, less toxic pesticides. These programs pose lower risk to people and the environment, but they also increase the potential for pests that spread from unmanaged home fruit trees to cause damage in commercial orchards.

The Backyard Tree Program provides an incentive to voluntarily remove unwanted home fruit trees, including pear, apple, crabapple, and cherry trees. The Columbia Gorge Fruit Growers will pay $25 dollars for each apple, pear, or cherry tree you remove. Tree removal is offered to seniors or those not physically able to remove trees themselves. To take advantage of this program, contact the Columbia Gorge Fruit Growers at 541-387-4769.

The high level of commitment required to grow commercially acceptable fruit may not be apparent to hobby or novice fruit growers.

Home fruit growers may neglect to control insect pests and diseases on backyard trees with few apparent consequences. As noted above, not controlling pests on home fruit trees may have serious consequences, however, because they often serve as sources of pest infestation to commercial orchards.

Over 20 Years of Serving You!

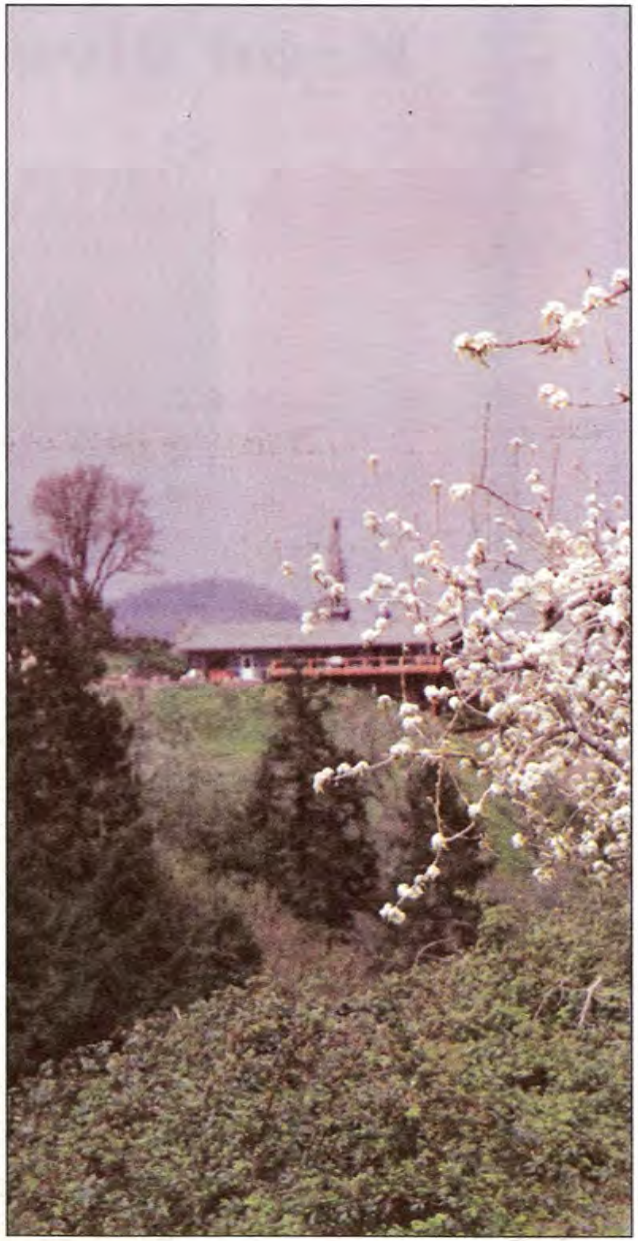
Ready to work!
Dirt work and hauling
— FREE ESTIMATES —
No job too small
Site prep, debris removal
Deliver crushed rock, drain rock, sand, etc.
Jim Smith, Owner

Most commercial fruit growers have already applied pre-bloom sprays targeting pests that overwinter on the tree with low risk pesticides such as sulfur and horticultural mineral oil. These early season sprays mark the beginning of a commitment to a season-long, integrated program aimed at preventing pest damage. Pre-bloom sprays are important for home fruit growers also, but the most important sprays for home apple, pear, and cherry trees usually don't start until mid- to late-May. These later sprays target codling moth, cherry fruit fly, spotted wing Drosophila, and apple maggot, four pests that are of special concern to fruit growers in the local orchards. Not only do these pests cause direct damage to fruit, each is a quarantined pest in some export destinations.

Because of relatively high pest pressure in the area, non-chemical methods of controlling these pests on home fruit trees often do not provide adequate results. Because these insects are all direct pests of fruit, annual removal of all fruit is one option. This must be done early in the season to prevent pest infestation and may be difficult to do on large trees or on trees with many small fruits. Well planned and executed spray programs can be very successful for home fruit growers, but there are significant challenges. Many factors contribute to the effectiveness of pesticide applications including application timing. The life cycle of most fruit pests is dependent on weather conditions, which affect the time of pest emergence in the spring and development through the rest of the season. For specific information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343. In Wasco County, call 541-296-5494.

**LEARN MORE**

**A training session on home fruit pest management is scheduled for Saturday, May 14, at the OSU Mid-Columbia Agricultural Research and Extension Center in Hood River. The session will run from 2 to 5 pm. There is no charge for the training, but pre-registration is required. To register, or for more information about the training, call the OSU Extension Service Office in Hood River at 541-386-3343.**



**BACKYARD Fruit Tree Program seeks to assist orchardists in preventing spread of pests from unmanaged trees to commercial, managed orchards like this one. Photos by Kirby Neumann-Rea**

THE DALLES CONCRETE
4120 River Rd.
541.296.3884

# ODA-S13 Increasing Efficiency and Market Access with FoodHub

*Attachment 1*: “In Their Own Words” — What Members are Saying About FoodHub
*Attachment 2*: FoodHub Connections Stories
*Attachment 3:* FoodHub Photo Gallery

## *Attachment 1*: "In Their Own Words" — What Members are Saying About FoodHub

"FoodHub is great; I had no idea all those farmers were out there. With a click of a button I have immediate access to a world of possibilities. It's just what I need."
— School food buyer, Beaverton Public Schools,

"It saves all the work of trying to research and figure out who the right contact person is. It's all right there; it's great."
— Brian O'Driscoll, Springbank Farm

**Brian and Michelle O'Driscoll, Springbank Farm**

"I've had a lot of success in posting inquiries saying 'I'm looking for this product or that product' and ultimately having people respond and making a connection."
— Melissa Williams, Restaurateur, Adam's Sustainable Table

"When I joined FoodHub I was just so excited because it made my life so much easier. All of the growers are there, in one place."
— Rebecca Andersson**,** Know Thy Food Buying Club

**Scot Laney, Eat Oregon First**

"It's a pretty seamless way to get to know people that it may have been more difficult for us to find on our own."
—Distributor, Eat Oregon First

"FoodHub is a great way for us to reach out to distributors and restaurants and caterers. It cuts out a lot of the leg work and makes the initial contact a friendlier experience."
— John Bannerman, Wilderness Poets

"Direct sourcing is at the core of our purchasing philosophy, and FoodHub certainly expedites the process. By creating a marketplace for these small and mid-sized growers, FoodHub enables Grand Central Bakery to support local economies while giving our customers a product of exceptional quality."
— Cuisine Manager, Grand Central Bakery

FoodHub has been a great way for us to find local sources. We want to keep these smaller farmers in business, and the only way to do that is if we're all buying from them.

— Susan Baker, Food Club Buyer, Columbia County Natural

**Ambrose Calcagno, CalFarms**

"It's a unique opportunity to market ourselves to a wide variety of buyers. It gives us credibility with new customers. We did a deal with Portland Public Schools through FoodHub. Before, that would have been a contact I wouldn't have thought of, but FoodHub helped us set that up and it was a real good experience for us."

— Farmer, CalFarms

"We're not planting more crops; instead we're planting more of the crops that grow better here. We used to raise 30 different varieties to take to farmers' markets. Now I grow 16 crops that do really well here and I sell it all because of the connections I've made on FoodHub."

— Phil Greif, pd Farms

"It's a great way for making introductions. As a marketing tool it's huge."

— Farmer, Big B Farms

**Matt and Frank Battilega, Big B Farm**

"With sales, most of the time it's boots on the ground. FoodHub allows us to not have to work the phones or put boots on the ground. It allows us to hit a lot of people very quickly. I believe it has all the tools companies need to make the connections they need.

As a small grower we'll be able to extend our market and reach out to where we want to do business without having to invest the time to physically go out there. It's a one stop shop. … With FoodHub you're able to leverage your time and expedite the process. There's no tool I'm aware of in the marketplace that can do that and that's so interactive.

FoodHub is advancing food grown and harvested locally. It literally connects the dots. And it's not just a one way tool for sellers, it saves a headache for buyers too."

— Pete Mulligan, Bull Run Cider

## *Attachment 2*: FoodHub Connections Stories

### *Bella Terra Gardens ↔ Wahluke School District*

They are a local food triple threat. As growers, packagers and distributors in Zillah, WA, **Bella Terra Gardens** – along with the other branches of their company, Barbee Orchards and Obert Cold Storage – bring local produce to local buyers. They've been in business since 1914 and had one food market left to explore: local schools.

But they didn't learn that schools were buying more local items by word-of-mouth. They found them on FoodHub.

Since joining FoodHub last fall, Gregg Everts of Bella Terra said he has made five connections with buyers from their Spokane, Seattle and Portland delivery triangle.

"The attitude among a lot of distributors seems to be 'go big or go home', but we don't want to go big. We just want to serve local people," Everts said, "and we're finding great success with FoodHub. Those five people we connected with will know five other people. It's just a snowball effect that's helped us get more business."

While searching the Marketplace for local buyers he saw a post from **Wahluke School District** Nutritional Services Director Diane Hyndman, based in Matawa, WA, about 60 miles away. Now, Everts is discussing plans to replace the current cucumbers and tomatoes on the school's salad bar with Bella Terra's locally grown products.

"It's a learning relationship for us," Hyndman said when asked about transitioning more school food to local. "Cucumbers and tomatoes were easy to transition to local because those were already things we were buying in bulk."

While tomatoes and cucumbers are a good start, Hyndman expects Bella Terra will bring more to the table.

"Right now we're starting out small at two cases a week, but we're hoping there's potential for growth. If they have a truck up here already it's advantageous to see what else they could bring," she said. And for Hyndman it's all about planning ahead. Since she's joined FoodHub, Hyndman said, seeing who's available on the horizon has become clearer.

"I think FoodHub is a great tool to learn who is in your regional neighborhood and learn what they're producing," she said. "It's hard to know what farms are 40 miles out there. They might be out of our immediate community, but still close enough to get food from. It gives me a real sense of who's in my area. FoodHub brings the farmers market right into my office."

"This is our first year that we're selling to schools," said Everts, "and it's because we got on FoodHub and got connected. It's easily accessible, it's right there in front of you on the computer, and it's just easy to get online and access points of interest."

### *Sassafras Catering ↔ Wobbly Cart Farm*

About a year ago, Sassafras Catering in Portland, Oregon started canning. With only a staff of two, they churn out 200 jars at a time of delectable treats like apple chutney and pickled pears.

"We use 50 to 100 pounds of product for each batch," said canning manager Jennifer Brooks, "and that's just for the main ingredients. Then there's everything else that goes into it."

When Jennifer needed a local source for Sassafras' Sunchoke Relish, she turned to FoodHub.

After placing a "Wanted" post in the FoodHub Marketplace, she connected with Joseph Gabiou of Wobbly Cart Farm, a grower and recent FoodHub Member in Rochester, Washington. Now, she's hoping that Joseph will not only be able to grow sunchokes for her, but also a list of 12 other essential ingredients to support Sassafras' line of nine canned goods.

"It was really exciting to sign up, find Jennifer in the Marketplace, use the communication tool to get ahold of her, and the day after, be talking to her, " said Joseph who signed up for FoodHub to find another way of getting excess produce to market during peak seasons.

"We're hoping that with the connections we find on FoodHub we can extend and refine our product line, keeping our quality and production scale high with a small staff," said Jennifer, who didn't think she would have connected with Wobbly Cart outside of FoodHub.

"I think FoodHub is going to set a standard for farmers and chefs connecting year-round, instead of just at events like the Farmer-Chef Connection," Jennifer said.

### *David Douglas School District ↔ Treasure from Heaven Farm*

Treasure from Heaven Farm sits in the northeast corner of Oregon, near the border with Idaho. On five acres, Andrea Sandberg and her family raise tree fruits, berries, and vegetables; free range geese, chickens and ducks to reduce the insects and mulch the crops; Nigerian milking goats; and pigs.

The small farm, which is fairly new, grew out of the Sandbergs' unreserved enthusiasm for gardening. In their first years, they supplied CSA members and the La Grande Farmers Market. Upon joining FoodHub and reading Marketplace posts, Andrea discovered that Portland-area food buyers were requesting many of the products that Treasure from Heaven grows and raises. The Sandbergs now sell fruits to the David Douglas and Beaverton School Districts—"We feel that it is a privilege to have our produce served to school children," she says—and whole pigs and farm fresh eggs to Portland fine dining restaurants.

"FoodHub is such a great resource for us small farmers out in Baker County," Sandberg proclaims.

***Sound Food ↔ Flying Dog Farms***

When they moved to Grapeview, Washington, seven years ago, Sue Sampson and her family embarked on a grand experiment.

They called their experiment **Flying Dog Farm**, took classes in farming and ranching at their local extension office, and dug in. After five years of growing pastured pork, and with her business steadily expanding, Sampson knew she needed to start another experiment, this time in marketing. That's when she found FoodHub.

"I was trying different things," Sampson said, "so I thought I would invest in FoodHub and see where it led me."

Recently, FoodHub led her to Bainbridge Island and a connection with FoodHub Associate Member **Sound Food**, which works to strengthen the food network in Washington State's West Sound. While trying to help a local retailer source pastured goods for their freezer, Sound Food's Carolyn Goodwin logged into FoodHub and started searching.

"We wanted to include frozen, vacuum packed, USDA inspected pastured meats in the offering there," Goodwin said. "Sourcing can be a real issue for sustainable, USDA inspected meats so I turned to FoodHub, found Sue, and voila, I called! It was a big win-win, all made possible by FoodHub."

Now, according to Goodwin, not only are they planning to source pork from Flying Dog Farm, but are also considering stocking the beef and lamb Sampson recently added to her ranching repertoire.

With her foot in the door and more eyes on her farm, Sampson plans to approach other grocers and restaurants in the Bainbridge area to market her meats.

"We're really excited about this connection," Sampson said. "Bainbridge Island is an untapped market and FoodHub has opened up a new avenue for us."

## *Attachment 3:* FoodHub Photo Gallery

FoodHub was honored to host a March meeting on regional food hubs, working in collaboration with USDA Rural Development. Ecotrust's Billy Frank Junior Conference Center was filled to capacity for the event, which brought together region food system stakeholders including farmers, government and nonprofit organizations, and professional and trade associations.

**Ecotrust Food and Farms Vice President Deborah Kane with USDA Oregon Rural Development Director Vicki Walker and USDA Washington Rural Development Director Mario Villanueva.**

**FoodHub and Farm to School Program staff helped to facilitate conversation among stakeholders throughout the day.**

**Dr. Kathleen Merrigan, USDA Deputy Secretary, addresses the crowd in her keynote presentation.**

**Slideshow: FoodHub in Action**

In July, 2001, *Sustainable Business Oregon* featured a story by editor Christina Williams, "FoodHub unveils facelift, readies to go national", which included a photo slideshow highlighting some of the site's users. With gratitude to *Sustainable Business Oregon* and the *Portland Business Journal*, the slideshow is included below, along with other images from FoodHub, the FoodHub Blog, and our records.

## Slideshow: FoodHub in action

**(1) With more than 2,200 members in five western states, the connections made between farm and table are many. Read on to learn more about Tricia Butler of Sassafras Catering (above), one of many who use FoodHub for their businesses.**

**(2) FoodHub, launched in February 2010, unveiled a redesign in July. A site that was known as the Match.com of the local food industry added the "Web 2.0" features to make it more of a robust social network and search engine for the food business.**

**(3) Deborah Kane, Ecotrust's vice president of food and farms for the nonprofit think tank Ecotrust, oversaw the launch of FoodHub and traveled to Washington, D.C., in July to take the local-food innovation message to the white house.**

**(4) Matt Battilega is a fourth-generation farmer and a recent graduate of Oregon State University who went looking for a technologically savvy way to connect his family farm's crops with buyers. "FoodHub is a Facebook for farmers," Battilega said.**

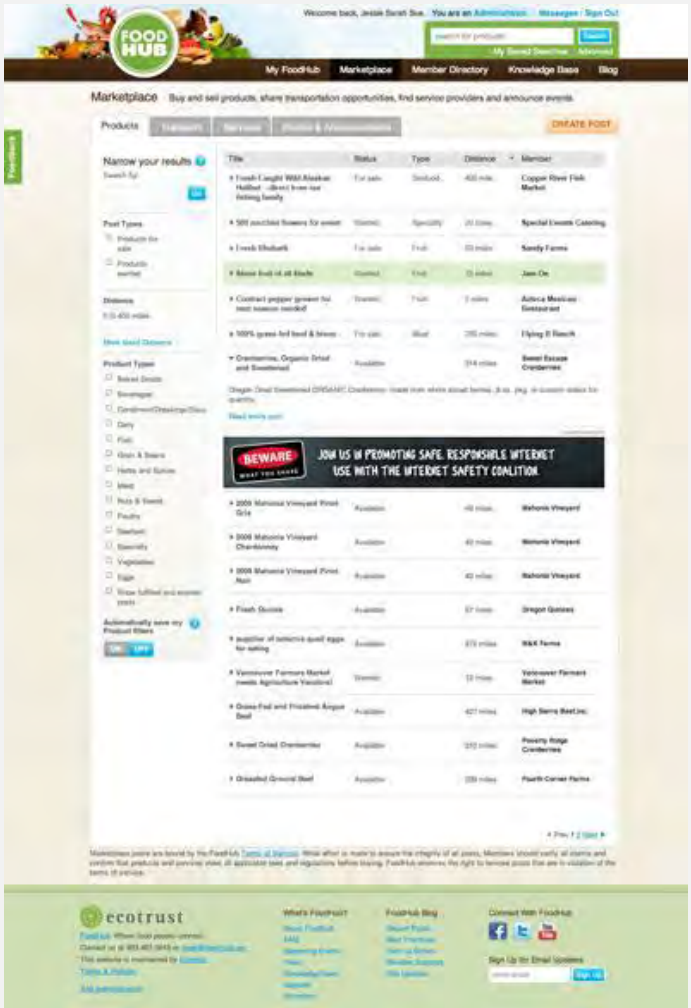
## Slideshow: FoodHub in Action
**(Sustainable Business Oregon)**

**(5)** Battilega's Big "B" Farm Inc. found a buyer for its rhubarb in Grand Central Bakery, which bought it up for pies and galettes. Now it's harvest time for zucchini.

**(6)** Grand Central Bakery of Portland and Seattle has been a leader in working directly with farmers for ingredients, but depends on FoodHub to fill in the gaps as it did when the bakery was in need of between 250 and 350 pounds weekly of rhubarb. This chard is from a Sauvie Island farm.

**(7)** Danille Tyrrel, a lead cook at Grand Central, takes chicken out of the cooler from Eat Oregon First, a distributor in Portland that is an active FoodHub user. "We grow a lot of our own stuff, but we never seem to have quite enough," said Eat Oregon First's founder Scot Laney.

(Slideshow continued next page)




**(8)** The new-and-improved FoodHub features more sophisticated search functionality and a marketplace that offers featured listings.

## Slideshow: FoodHub in Action

**(Sustainable Business Oregon)**

**(9)** Ivan Maluski of Tipping Tree Farm is finding an ally in FoodHub as he moves more heavily into heritage animals such as these —Large Blacks and Tamworth reds, which he his cross-breeding.

**(10)** Maluski keeps 50 heritage turkeys on Tipping Tree Farm and has leased 40 additional acres for the

**(11)** Maluski keeps a day job as conservation director for the Sierra Club, so he appreciates the business-development services offered online by FoodHub.

**(12)** "Sourcing has always been the hardest part of our job, and FoodHub has helped relieve some of the pain," said Tricia Butler, founder of Sassafras Catering, a maker of artisan preserves.

**(13)** Butler used FoodHub to find growers of the specialty crops she needed for relishes and chutneys, including sunchokes.

**(14)** Finding reliable farm connections has allowed Sassafras Catering to ramp up production, allowing the two-person Portland company to start selling preserves on the shelves at Whole Foods.

## Lean Against the Truck

In early October, partnering with Whole Foods Market, the FoodHub team fielded the first face-to-face networking opportunity exclusively for FoodHub members. The event was a response to feedback from wholesale food buyers who expressed the desire to meet the producers face to face and get to know the people behind the products. For two and a half hours at this pop-up marketplace, sellers promoted their goods and wholesale buyers perused the impromptu stalls.

**Deborah Kane checks in with the FoodHub team at the registration table, while buyers and sellers mingle at a pop-up marketplace. The two groups were able to get acquainted, make deals on site, or exchange contact info for later follow up.**

**To make her sipping vinegars, Sage and Sea proprietress Deb Tabor sources specialty crops from WA and OR producers including Maryhill Orchards, Unger Farms, and Persephone Farm.**

**Staged in the heart of the city, the purpose of this event was to capture the sense of informal interaction that might happen if food buyers could visit with wholesale sellers at a farm, ranch, or commercial kitchen.**

**A selection of the products, including specialty crops, featured by the producers who attended the event. Blossom Vinegars, based in Portland, creates specialty vinegars with fresh, whole fruits and herbs from throughout the region, with vinegars including Blueberry Basil, Raspberry, and Walla Walla Onion.**

This successful event can serve as a model for future wholesale marketplaces that will allow FoodHub members to make face-to-face connections. More information about this first event is available on the FoodHub blog, along with more photos from the event: http://food-hub.org/news/2011/10/friendly-faces-from-lean-against-the-truck/.

# ODA-S14 The Oregon Nursery Certification Project

*Attachment 1*: Sustainability Standards for Nursery and Greenhouse Operations
*Attachment 2*: Field workshop web notice
*Attachment 3:* Poster

# FA Sustainability Evaluation Tool for Nursery and Greenhouse Operations

FA-ET-04

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## Contents

I. Instructions for Self Assessment and Third-Party Inspection

II. Evaluation Tool for Safe and Fair Working Conditions

III. Evaluation Tool for Wildlife Habitat and Biodiversity Conservation

IV. Evaluation Tools for Plant Production

- A. Container Production
- B. Field Production
- C. Greenhouse Production

V. Checklist for Combined Food Alliance and Salmon Safe Certification

VI. Summary Scorecard

VII. Acknowledgements

## I. Instructions for Self Assessment and/or Third-Party Inspection

This packet includes Food Alliance evaluation tools pertinent to the FA Sustainability Standard for Greenhouse and Nursery Operations. These evaluation tools describe criteria and indicators to assess sustainability practices and outcomes.

FA Sustainability Evaluation Tools have two purposes:

1. Growers may use the Evaluation Tool to self-assess current management practices and sustainability performance.

2. Third-party inspectors contracted by International Certification Services will use the Evaluation Tool to determine if an operation meets the requirements of the FA Sustainability Certification program.

To learn more about the FA Sustainability Standard for Greenhouse and Nursery Operations, including information about certification, visit: www.foodalliance.org/nursery

## II. Evaluation Tool for Safe and Fair Working Conditions

Name of Operation:

---

Date of Inspection:

---

Site Inspector:

---

## Instructions for Use

1. Each standard area is scored according to Food Alliance evaluation criteria. Points are given for performance of each evaluation criteria as measured against the indicators in Levels 1 through 4. Points are only earned for the highest Level achieved.

2. Scoring partial points is allowed. Example: Half of the operation is in a four-year crop rotation, a Level 3 practice. You may score 2.5 points, or half the increase between Level 2 and Level 3, as a result.

3. No points are earned for a criterion that is not applicable (N/A) to the operation or region. These points are subtracted from the total as explained on the score sheet. This ensures all operations are scored fairly, based on the actual facilities present and practices in use. A full explanation for any N/A is required.

4. For producer/managers reviewing this evaluation tool: This is only a guideline for your use and does not guarantee acceptance of your application.

5. Inspectors should make notes on each criterion describing how they arrived at decisions, <u>including means used to verify all specific producer/manager claims</u>. These notes provide important background, which will be carefully considered in the final certification decision. Please make note of any criteria or indicators that were not applicable and the reason. Also include any Best Management Practices (BMPs) implemented by the producer/manager that are not listed in this inspection tool. Please be sure to consult the endnotes provided, as they provide guidelines for inspection criteria.

6. Inspectors may request records or other materials to document any claims made by producer/manager.

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## Minors, children and family members in the workplace

**Level 1: Operation complies with laws regarding employment of minors. Check <u>if applicable</u>:**

- ☐ Operation has no policy or procedure regulating non-employees access to the workplace.

**Level 2: Operation has a written policy designed to keep ALL non-employees out of the workplace. The policy exempts family members, however it states that children of the manager's family (under age of 12) must be supervised when around the workplace area and in fields.**

**Level 3: As per Level 2, and <u>one</u> of the following items dealing with family and/or minors under employ applies (check <u>all that apply</u>):**

- ☐ Legal minors are employed only during non-school hours.
- ☐ Special training is provided for minors and/or children of operation owner, managers or employees (see 4-H guidelines for child safety on operations).
- ☐ Operation communicates with parents of minors regarding the employment of their children
- ☐ Childcare is provided operation employees' children.
- ☐ Supervisors are trained on the special management needs of minors
- ☐ At the request of an operation employee, third parties are allowed to visit the operation and speak to operation management
- ☐ Other:

Note: If the operation does not employ minors, that fact can be noted under 'other.'

**Level 4: As per Level 3, and <u>two or more</u> items from Level 3 apply.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Grievance procedures and policies

**Level 1: Operation has no grievance policy. Operation management makes no suggestions to employees that they may raise grievances.**

**Level 2: Operation policies exist that allow/encourage employees to raise concerns, safety issues, or grievances without fear of termination. <u>One or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ The policies are verbally communicated to employees, either at the time of hire or at the time the policies are implemented.
- ☐ Employees are directed to a designated individual with whom to raise concerns/grievances
- ☐ If needed, operation management staff can speak with employee in native language, or someone on staff is available to translate

**Level 3: As per Level 2, and the policies are communicated in writing. <u>All</u> of the following apply:**

- ☐ The policies are accompanied by a set of procedures that describes how grievances, concerns, and/or safety issues will be handled.
- ☐ Employees are given the name of the person with whom to file the grievance

**Level 4: As per Level 3, and the operation takes steps to encourage and get feedback regularly from employees. Written operation policy requires meetings to be scheduled to communicate with employees about their concerns, or an open door policy.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Recognizing and supporting employee input for workplace improvement

---

**Level 1: Employer or managers discourage employees from forming groups or discussing issues.**

**Level 2: Employer or managers verbally encourage employees to discuss work place issues and develop ideas for improving the workplace.**

**Level 3: As per Level 2, employer or manager has a policy in writing encouraging employees to develop ideas for improving the workplace. Improvement ideas utilized by the employer will be acknowledged within the company and the employee may be compensated for their idea.**

**Level 4: As per Level 3, and the operation supports group activities with space for meeting and/or time set aside during the workday for meetings.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Employee support services

---

**Level 1: When approached by employees or third party representatives, employer is not receptive. Employer communicates this un-receptiveness to the inspector.**

**Level 2: Employer works with groups of employees or third party representatives (any person representing a group or organization dedicated to welfare, safety, labor unions, legal services, etc.) to improve workplace conditions (check <u>all that apply</u>):**

- ☐ Employer meets with third party representatives when asked by the employees
- ☐ Employer meets with community groups to discuss health and welfare
- ☐ Employer cooperates with groups to build workplace productivity
- ☐ Employer cooperates with groups to ID training needs
- ☐ Employer cooperates with groups to ID safety concerns
- ☐ Employer has addressed the recommendations of a third party representative
- ☐ Other:

**Level 3: Operationhas a written policy communicating openness to working with third party representatives and/or groups of employees.**

**Level 4: As per Level 3, and the policy describes a timeline or process for responding to recommendations made by third party representatives.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Discipline process

---

**Level 1: There is no policy or procedure in place requiring a uniform disciplinary process that maps out the steps that may lead to termination. When terminations occur, it involves no process of coaching to improve performance.**

**Level 2: There is a written policy in place but is not distributed to operation managers or employees. Firing may take place at the will and on the terms of the operation manager.**

**Level 3: A written policy is in place. Copies of the policy are distributed to new hires and given to all operation managers. Firing of an employee comes at the end of a stepped, progressive discipline process.**

**Level 4: As per Level 3, and all operation managers are trained to implement policy uniformly. The policy must describe a process to improve performance problems.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Nondiscrimination policy

---

**Level 1: Employer has no written policy claiming non-discrimination practices consistent with the law are in effect.**

**Level 2: Employer has a written policy describing non-discrimination practices consistent with the law. The following items are discussed (check <u>all that apply</u>):**

- ☐ Age
- ☐ Race
- ☐ Third party affiliation
- ☐ Religion
- ☐ Gender
- ☐ Sexual orientation
- ☐ National origin
- ☐ Disability
- ☐ Other: ____

**Level 3: As per Level 2, employer provides training for managers for implementing non-discrimination policy.**
1

**Level 4: As per Level 3, and employer extends training to employees.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Hiring practices, communicating expectations and policies

**Level 1: Employer does not communicate with employees about job expectations or workplace policies.**

**Level 2: Employer verbally communicates job expectations and policies at the time of hire.**

**Level 3: Employer gives new hires a workplace policies document. Check <u>all that apply</u>:**

- ☐ This written document is in both English and applicable language for non-English speakers
- ☐ New employees are given a sign-off sheet acknowledging receipt of the policies
- ☐ New employees are given a sign-off sheet describing job expectations
- ☐ New employees are given a sign-off sheet detailing the terms of employment (pay rate, schedule/work day, and length of employment)
- ☐ Employer gives some limited job training and orientation specific to the task
- ☐ Employer has an orientation checklist that is kept on file to keep a record of the orientation/training activity
- ☐ Employer shows educational materials such as videos, manuals, etc, for safety and/or tasks specific to the jobs
- ☐ Employer has taken a cultural sensitivity class in order to better relate with employees
- ☐ Other:

**Level 4: As per Level 3, and employer offers employees a written employee contract detailing terms and conditions of employment.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Work force development and new skills training

Note: For seasonal laborers doing un-skilled tasks, this criterion is non-applicable. It does apply for laborers performing skilled tasks.

**Level 1: Manager provides no training opportunities for employees.**

**Level 2: Employer allows limited unpaid leave for employees to pursue training or offers on-site training through mentorships or cross training programs. Employers encourage employees to voice their interest in positions of advancement and document their decisions with rationale and outcome.**

**Level 3: Employer encourages workplace training by providing paid time off and/or tuition for job related educational activities.**

**Level 4: As per Level 3, Employer offers paid leave to employees for training relevant to required tasks.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Compensation practices

**Level 1: Employer meets federal laws for pay period, at least every two weeks, and meets minimum wage laws. Employer has a system to track piece rate to ensure minimum wage is met. Employer keeps records on each employee.**

**Level 2: As per Level 1, employer has a progressive compensation system that includes <u>at least one</u> of the following practices (check <u>all that apply</u>):**

- ☐ Employer adjusts piece rates to reward seniority or performance, or changing crop conditions
- ☐ Employer gives bonuses to reward productivity of the group
- ☐ Employer shares profits
- ☐ Employer distributes work opportunities fairly, not giving favorite workers best opportunities
- ☐ Employer conducts regular performance evaluations, rewarding good performance with pay raises
- ☐ When employer gives pay advances to employees, they have system to communicate the expectations to prevent confusion on the part of the employee
- ☐ Employer gives bonus wages to reward excellent work
- ☐ Other:

**Level 3: As per Level 2, and <u>a total of two</u> items from Level 2 apply.**

**Level 4: As per Level 3, and <u>a total of three or more</u> items from Level 2 apply.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Employee benefits

**Note:** Non-applicable for seasonal-only labor.

**Level 1: Employer provides unemployment and/or workers compensation insurance.**

**Level 2: Employer provides one of the following (check all that apply):**

- ☐ Health insurance
- ☐ Disability insurance
- ☐ Life insurance
- ☐ Subsidizes cost of or provides transportation to employees
- ☐ Arranges for community groups to provide assistance to workers
- ☐ Sick pay
- ☐ Vacation pay
- ☐ Reduced cost housing for full time employees
- ☐ Housing allowance or special compensation to cover housing costs
- ☐ Migrant worker/temporary worker housing at reduced rates
- ☐ Employer gives bonus wages (for holidays, to reward excellent work, attendance, etc.)
- ☐ Operation provides investment assistance
- ☐ Other :

**Level 3: As per Level 2, and employer provides a total of two benefits from Level 2 (check all that apply).**

**Level 4: As per Level 3, and employer provides a total of three or more benefits from Level 2 (check all that apply).**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Employee housing and family support services

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**Level 1: Employer provides no housing, referrals, and/or services to employees.**

**Level 2: Employer refers workers to community resources for housing and other health and welfare information and/or employer provides housing AND housing meets legal standards. Check all that apply:**

- ☐ Employer keeps a list of community resources to give to employees
- ☐ Employer keeps a list of housing opportunities to give to employees
- ☐ Employer offers childcare services or stipend
- ☐ Employer participates at a high level (leadership, donations, etc.) in community groups dedicated to increasing housing opportunities
- ☐ Employer donates money and other resources to local housing groups
- ☐ Other:

**Level 3: As per Level 2, and two items from Level 2 apply if housing not provided.**

**Level 4: As per Level 3, and a total of three or more items from Level 2 apply if housing not provided.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Pesticide handler/applicator safety

**Level 1. All legal requirements are met for protection of handler/applicators and others who handle hazardous materials including crop and structural-use pesticides, fertilizers, fuel, lubricants, solvents, etc., including protective equipment, re-entry and pre-harvest intervals and posting appropriate signage.**

**Level 2. As per Level 1, and all of the following apply for pesticide applicators:**

- ☐ All workers are closely supervised by a licensed pesticide applicator
- ☐ All workers have taken a pesticide application training course

**Level 3. As per Level 2, and two of the following (heck all that apply):**

- ☐ Emergency eye washing facilities are provided near storage, mixing/loading and/or application sites
- ☐ Showers and changing rooms are provided near storage, mixing/loading and/or application sites
- ☐ Spare clean clothing is provided near storage, mixing/loading and/or application sites
- ☐ Protective clothing is used and cared for properly (e.g., laundered as soon after use as possible, laundered separately from household wash)
- ☐ Respirator use training and fitting
- ☐ Respirators are kept in protective packaging
- ☐ Respirator pads are changed regularly
- ☐ Pesticide applicators applying highly toxic chemicals (e.g., pesticides labeled "Danger") are equipped with powered filtered-air respirator systems and/or positive pressure cabs
- ☐ When applicable, workers handling solvents, fertilizers, etc., with potential to cause injury, are provided appropriate safety equipment
- ☐ Other:

**Level 4. As per Level 3, and a total of a total of three or more items from Level 2 apply (check all that apply).**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Hazardous materials emergency management

**Note:** Supplies needed include: absorbents, trash bags, rubber boots & gloves, eye protection and/or respirators.

**Level 1. All state or local legal requirements (if applicable) are met for emergency management of spills, fires or other emergencies related to hazardous materials.**

**Level 2. As per Level 1, and any spills in storage, mixing/loading or application sites are cleaned up promptly. As an indicator, spill response kits/equipment (can be as simple as absorbent materials, i.e.**

**kitty litter) are readily available where hazardous materials are stored, mixed or used. Materials used to clean up spills are disposed of properly.**

**Level 3. As per Level 2, and emergency washing facilities such as showers, eyewash and spare clean clothing are provided near storage, mixing/loading and application sites.**[2]

**Level 4. As per Level 3, and a written emergency management plan (see Operation safety policy) is available including (check all that apply):**

- ☐ Identification and phone numbers for persons who should be contacted
- ☐ Procedures and equipment to be used
- ☐ Copies of complete labels and MSDS sheets of hazardous materials used
- ☐ Location of fixed storage sites
- ☐ Policies requiring training for those who work with or around hazardous materials
- ☐ Other:

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Sanitation and general safety

**Level 1: All of the following apply:**

- ☐ Employers provide clean drinking water and clean latrines with handwashing stations to workers in fields and/or working areas[3]
- ☐ Handwashing stations or facilities have soap and water
- ☐ Upon inspection all facilities are clean
- ☐ Employers provide safety training consistent with the law

**Level 2: As per Level 1, and one of the following apply:**

- ☐ Employer provides a shower facility with warm water for employees to wash and change after the workday (4)
- ☐ Employer provides options for reduction repetitive motion injury associated with operation production (specify options provided)
- ☐ Operation provides temporary shelter for employees during breaks and lunches in remote work spaces
- ☐ Employer contracts with professional firms to provide safety training
- ☐ Employer has developed training checklists specific to jobs to ensure each employee gets training
- ☐ Employer sets goals for safety and tracks success
- ☐ Employer gives bonuses when safety goals are met
- ☐ Other:

**Level 3: As per Level 2, and a total of two items from Level 2 apply (check all that apply).**

**Level 4: As per Level 3, and a total of three or more items from Level 2 apply (check all that apply).**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Scorecard for safe and fair working conditions

| | SCORE/LEVEL |
|---|---|
| Minors, children and family members in the workplace | |
| Grievance procedures and policies | |
| Recognizing and supporting employee input for workplace improvement | |
| Employee support services | |
| Discipline process | |
| Nondiscrimination policy | |
| Hiring practices, communicating expectations and policies | |
| Work force development and new skills training | |
| Compensation practices | |
| Employee benefits | |
| Employee housing and family support services | |
| Pesticide handler/applicator safety | |
| Hazardous materials emergency management | |
| Sanitation and general safety | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 28 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Endnotes

[1] If an owner is also the operation manager, his/her own training applies here.

[2] The emergency washing facilities can include the operator's home.

[3] For operations greater than 2000 acres, only needed in shop areas or water mounted on tractors, for example.

[4] This can include the operator's home.

# III. Evaluation Tool for Wildlife Habitat and Biodiversity Conservation

Name of Operation:

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Date of Inspection:

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Site Inspector:

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## Instructions for Use

1. Each standard area is scored according to Food Alliance evaluation criteria. Points are given for performance of each evaluation criteria as measured against the indicators in Levels 1 through 4. Points are only earned for the highest Level achieved.

2. Scoring partial points is allowed. Example: Half of the operation is in a four-year crop rotation, a Level 3 practice. You may score 2.5 points, or half the increase between Level 2 and Level 3, as a result.

3. No points are earned for a criterion that is not applicable (N/A) to the operation or region. These points are subtracted from the total as explained on the score sheet. This ensures all operations are scored fairly, based on the actual facilities present and practices in use. A full explanation for any N/A is required.

4. For producer/managers reviewing this evaluation tool: This is only a guideline for your use and does not guarantee acceptance of your application.

5. Inspectors should make notes on each criterion describing how they arrived at decisions, <u>including means used to verify all specific producer/manager claims</u>. These notes provide important background, which will be carefully considered in the final certification decision. Please make note of any criteria or indicators that were not applicable and the reason. Also include any Best Management Practices (BMPs) implemented by the producer/manager that are not listed in this inspection tool. Please be sure to consult the endnotes provided, as they provide guidelines for inspection criteria.

6. Inspectors may request records or other materials to document any claims made by producer/manager.

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Note: These criteria describe general approaches to biodiversity management. Practices listed are intended to serve as indicators of management approach, intent and desired outcomes. Conservation activities will be more obvious when actually on-site. Provide notation of viewed activities.

## Continuing education for biodiversity conservation

**Level 1: Manager demonstrates little or no knowledge about wildlife habitat or threatened/endangered species conservation. Current operation reflects this knowledge gap, with no special planning or action considered to prevent agricultural activities from interfering with natural areas (if present).**

**Level 2: Manager relies on general interest publications (newspapers and general newsletters, etc.) to learn about wildlife and habitat issues, natural pest control, establishment of insectary plants, predatory bird nesting sites, etc. Manager demonstrates a basic understanding of the issue area (<u>one</u> of the following applies):**

- ☐ There are no natural areas on the operation.
- ☐ Natural areas exist on the operation and actions are limited to preventing agricultural activities from interfering with natural areas

**Level 3: Manager uses technical, subject matter-specific information sources or participates in seminars for habitat management, ID of habitat types or native vegetation, fish or wildlife management, etc. When natural areas exist on the operation, manager can discuss wildlife and habitat issues and communicates knowledge of (check <u>all that apply</u>):**

- ☐ General habitat management
- ☐ Native plants
- ☐ Native animals
- ☐ Invasive or exotic plants and animal
- ☐ Sensitive, priority habitat
- ☐ Endangered or at risk species
- ☐ Migratory species
- ☐ Riparian habitat
- ☐ Aquatic ecosystems
- ☐ Other (please specify):

**Level 4: Manager participates (or has participated in the last 5 years) in on-site testing of new wildlife habitat conservation strategies or concepts to evaluate their performance.**

SCORE:

VERIFICATION METHODS/NOTES:

## Biodiversity plan

**Level 1: Manager has not developed a biodiversity plan for the operation.**

**Level 2: <u>One</u> of the following applies:**

- ☐ Manager has completed sections I of the Food Alliance Biodiversity Plan, mapping and describing existing biodiversity features and problem areas.
- ☐ Manager has a document containing similar information, such as an NRCS conservation plan.

**Level 3: Manager has completed sections I, II A and II B of the Food Alliance Biodiversity Plan, and one of the following applies:**

- ☐ Using sections III and IV of the Food Alliance Biodiversity Plan, manager has identified at least 2 biodiversity threats and at least 2 biodiversity opportunities, and management actions to address them.
- ☐ Manager has a similar document in place, such as an NRCS conservation plan, that addresses the same issues as the Food Alliance Biodiversity Plan.

**Level 4: As per Level 3, and one of the following applies:**

- ☐ Manager has completed all of sections II, III and IV of the Food Alliance Biodiversity Plan and can describe how the operation's plan is used to meet other Food Alliance biodiversity criteria.
- ☐ Manager has a similar document in place, such as an NRCS conservation plan, that addresses the same issues as the Food Alliance Biodiversity Plan, and can describe how the operation's plan is used to meet other Food Alliance biodiversity criteria

SCORE:

VERIFICATION METHODS/NOTES:

Reducing on-site threats to wildlife

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**Level 1: Manager communicates little or no knowledge about wildlife on/around the operation, and no steps are taken to reduce on-operation's threats to wildlife.**

**Level 2: Manager can identify on-site threats to wildlife but has not taken significant steps to reduce threats.**

**Level 3: Manager has identified on-site threats to wildlife and biodiversity in plan, and has completed at least one identified action to minimize threats to biodiversity. Manager can describe how the action addresses the threat. In addition, one or more of the following apply (check all that apply:**

- ☐ If water-holding facilities (tanks, troughs, etc.) are present, these provide safe access and escape for wildlife and are free of hazards for aerial wildlife.
- ☐ Management ensures that water resources on the operation are protected from contamination by activities of the operation.
- ☐ Fencing is constructed around individuals fields rather than surrounding the entire operation.
- ☐ Grain harvest is delayed (as appropriate) to provide cover for hatching of ground nesting birds.
- ☐ Fences are constructed with considerations for wildlife species and their movements.[1]
- ☐ Grazing takes into account habitat needs, including reproduction and migration, of priority species and other wildlife. Time intervals between grazing may be increased to accommodate wildlife species.
- ☐ In pastures, hay fields, or natural areas, all grasses are left un-mowed during migration or reproductive times - spring mowing is delayed as needed to allow ground-nesting species to nest, reproduce, and grow.
- ☐ Vehicle traffic and activities around natural areas are limited during migration and reproductive times and/or when wildlife is present, or traffic is completely restricted from natural areas.

- ☐ Manager limits other disturbances to wildlife, especially during sensitive stages of species' life cycles (reproductive and rearing) and migratory activity.
- ☐ Mowing equipment has a flushing bar installed to flush birds and other wildlife and prevent mortality.
- ☐ Manager uses benign practices whenever possible to protect crops from wildlife damage.
- ☐ Priority species, including keystone species such as prairie dogs and beavers that provide habitat for wildlife, are not harmed.
- ☐ Where practiced, ditch cleaning is done with proper precautions (e.g. timing) for aquatic habitat, fish, and water quality.
- ☐ Other (as specified in plan):

**Level 4: As per Level 3, and manager has identified opportunities to reduce on-site threats to wildlife in the Food Alliance Biodiversity Plan or other plan. <u>A total of three or more</u> practices from Level 3 have been implemented.**

SCORE:

VERIFICATION METHODS/NOTES:

Biodiversity conservation in plant production areas and cropped/grazed areas

**Level 1: The operation has made no apparent improvements related to biodiversity conservation in plant production areas or cropped/grazed areas. Hedges, live trees, dead snags, and other natural habitat elements have been removed without first exhausting other alternatives. Manager has not considered options for increasing in-field diversity.**

**Level 2: Manager has identified opportunities for biodiversity conservation in plant production areas and cropped/grazed areas, but has not made improvements.**

**Level 3: Manager has identified opportunities to improve biodiversity in plant production areas and cropped/grazed areas, and has begun to make improvements. <u>At least one</u> high-impact improvement and <u>at least two</u> low-impact improvements have been implemented, where applicable. (Check <u>all that apply</u>):**

Low impact improvements:

- ☐ Pollinator and natural enemy insectary plants are grown in and around fields to increase organic matter and provide cover and habitat for beneficial insects and other wildlife.
- ☐ Structures are created to meet specific needs of native species, including beneficials.[2]
- ☐ Structures such as barns and sheds are managed provide habitat for native birds and bats.
- ☐ Native plants, especially pollinator-friendly plantings, are used to landscape around buildings.
- ☐ Growing a variety of crops in annual systems or intercropping in perennial systems brings diversity to the operation and benefits soil microorganisms.

- ☐ Grazed areas are well-managed, and overgrazing is prevented. Frequency, intensity and timing of livestock grazing are managed to minimized negative impacts to soil, vegetation, and ecosystem health.
- ☐ Trees, especially large live or dead trees, are left in place in and around fields to for predatory birds and other wildlife.
- ☐ Beetle banks are established.
- ☐ Ditch clearing is alternated from side to side, each year.
- ☐ Crop residue/stubble is left standing to provide cover or food for wildlife.
- ☐ A small portion of the crop is left un-harvested for wildlife.
- ☐ Other (please specify):

High impact improvements

- ☐ Fields are left fallow for a year or more to provide wildlife habitat.
- ☐ Fallow fields, pastures, or crop stubble are flooded, if appropriate, to provide habitat for waterfowl and shorebirds.
- ☐ Fallow fields are left with plant cover to provide food, water, and/or cover; this includes cover crops, or crop residue left on soil surface.[3].
- ☐ Field rotations include a fallow period specifically designed for wildlife habitat
- ☐ Trampled or eroded areas are restored with native perennial grasses and forbs for the benefit of wildlife as well as livestock.
- ☐ Multiple grasses and forbs comprise the pastures and resting fields.
- ☐ Grazing areas are populated by multiple species of grasses and forbs.
- ☐ Manager makes arrangements to supply water as needed to water holding areas for use by wildlife, where appropriate.
- ☐ Grazing areas or agro-forestry enterprises are established to benefit wildlife habitat as well as plant production areas and cropped/grazed areas.
- ☐ Pastures or agro forestry enterprises are established for the dual benefit of plant production and wildlife habitat.
- ☐ Other (please specify):

**Level 4: As per Level 3, and manager has identified opportunities to improve biodiversity in plant production areas and cropped/grazed areas in the biodiversity plan. <u>A total of</u> <u>at least two</u> high-impact improvements from Level 3 and <u>a total of at least three</u> low-impact improvements from Level 3 have been implemented (check <u>all that apply</u>).**

SCORE:

VERIFICATION METHODS/NOTES:

## Biodiversity conservation in natural or unused areas

☐ N/A: No natural areas exist on the operation.

**Level 1: The operation has unused areas that are not used for plant production or other activities of the operation, but these are kept bare or are dominated by invasive species. Threats to wildlife and opportunities for biodiversity conservation are not taken into account in managing unused areas.**

**Level 2: Unused areas are managed to avoid introduction and establishment of invasive species. Some areas, including fencerows, hedgerows, and center-pivot corners, are left uncropped and include perennial ground cover.**

**Level 3: Manager has identified opportunities to improve biodiversity in natural or unused areas. At least two improvements have been implemented. Check all that apply:**

- ☐ Native vegetation is established in unused areas (e.g., fencerows, windbreaks, field margins, center-pivot corners, riparian buffers) or natural areas are left intact and not converted to production.
- ☐ Plantings of native species in unused areas include a diversity of grasses and forbs, including flowering species that benefit native pollinators.
- ☐ Landowner participates in a Farm Bill incentive program, including CRP, WHIP, or EQIP. [Credit is given ONLY IF these areas are managed specifically for wildlife habitat].
- ☐ Areas of remnant or high-priority habitat (e.g., native prairie, prairie pothole or other wetland) are left intact and not converted to production.
- ☐ Natural processes such as fire and flood are allowed to operate in natural areas when possible.
- ☐ Riparian buffers, windbreaks, and other larger set-aside areas where trees and shrubs are appropriate maintain good canopy cover (>50%) of mixed multi-aged, native species. Newly established plantings have a ground cover including a mix of appropriate grasses and shrubs with a second-story of cover and habitat, especially along stretches of streams or rivers in need of bank stabilization.
- ☐ A conservation easement or other long-term agreement protects the conservation values on the land.
- ☐ Where possible, areas of native vegetation on-site are linked with surrounding natural areas to provide habitat connectivity.[4]
- ☐ Areas of native vegetation are increased in size over time to benefit a greater number and diversity of species.
- ☐ Natural areas are managed to benefit the specific needs of threatened or endangered species that occur locally.
- ☐ Other (please specify):

**Level 4: Opportunities to improve biodiversity in natural or unused areas are identified in the biodiversity plan. Manager consults with experts to ensure that plantings are site-appropriate, given the context of the larger ecosystem (e.g., shrubs and trees are not established on a grassland site). A total of three or more improvements from Level 3 have been implemented (check all that apply).**

SCORE:

VERIFICATION METHODS/NOTES:

Invasive species prevention and management

**Level 1: Present or potential invasive species are not identified in the biodiversity plan. Manager neither prevents establishment of invasive species nor systematically controls invasive species. Manager is not informed about the issue. Check all that apply:**

- ☐ Manager deals with problems in plant production areas and cropped/grazed areas stemming from invasive species as they are encountered and/or as time permits.
- ☐ Manager has no plan, or systematic inventory of invasive species problems.
- ☐ Manager communicates no knowledge of invasive species or of how to identify them.
- ☐ Operation's records do not refer to invasive species, and are not used in reduction of invasive species problems.
- ☐ Operation currently produces invasive species.
- ☐ Other (please specify):

**Level 2: Present or potential invasive species are identified in the biodiversity plan, and manager has the ability to identify or describe most common species. Check <u>all that apply</u>:**

- ☐ Control of invasive species involves limited prevention strategies.
- ☐ Manager performs rudimentary planning for invasive species control, with some inventory of existing problems.
- ☐ Inventory of invasive species problems extend beyond the plant production area and cropped or grazed areas and into habitat areas.
- ☐ Manager communicates some knowledge of species life history and vulnerabilities in order to increase treatment effectiveness.
- ☐ Other (please specify):

**Level 3: As per Level 2, and actively prevents introduction and spread of invasive species by implementing policy/protocols in biodiversity plan. <u>One or more</u> of the following apply:**

- ☐ Manager establishes a policy or protocol designed to prevent establishment, not just control, of invasive species as problems arise.
- ☐ Where seeds and composts are purchased, manager uses only certified seed and composts to prevent weed seeds from coming onto the operation.
- ☐ Steps are taken to eradicate invasive species in natural areas while not harming the habitat and populations of natural species.
- ☐ Manager communicates solid knowledge base of invasive species in the area and demonstrates the ability to identify, with some life history knowledge.
- ☐ Manager keeps control records to improve control program.
- ☐ Manager seeks additional knowledge to assist with control program effectiveness.
- ☐ Other (please specify):

**Level 4: As per Level 3, and <u>a total of three or more</u> from Level 3 apply. Manager has an advanced understanding of IPM principles and application, including bio-control, and implements policy/protocols in the biodiversity plan to prevent the introduction and spread of invasive species. Check <u>all that apply</u>**

- ☐ Manager has systematic inventory and stated thresholds that trigger control action.
- ☐ Invasive species are a high priority in overall operation as reflected in the operation's plans and records.
- ☐ Manager has advanced knowledge of life cycles and control is performed at most effective time.
- ☐ With noxious weeds, manager has planned re-vegetation with desirable plants to gain control of site.
- ☐ Manager uses predators of invasive species and other bio-control methods.
- ☐ Manager keeps comprehensive records and evaluates program each year for effectiveness.
- ☐ Land clearly shows results of this comprehensive invasive species management program.
- ☐ Manager works with state/federal agencies (e.g. Dept. of Natural Resources, Dept of Agriculture) to develop and implement control plans.
- ☐ Manager discusses problems with neighbors to increase effectiveness of the control effort.

- ☐ Manager actively tries to coordinate with neighbors in control efforts that have an impact on the wider general area.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Linking individual wildlife habitat conservation activities together

☐ Note: Government projects are included in this criterion.

**Level 1: Manager is not involved with other landowners or regional/state/federal agencies to link individual on-site actions to larger landscape activities.**

**Level 2: Manager participates in watershed councils, soil and water districts, or other landscape activities promoted by regional/state/federal agencies, industry organizations, non-profits, or similar groups.**

**Level 3: At least one of the following applies:**

- ☐ Manager has made on-site habitat improvements in concert with nearby landowners
- ☐ Manager has made on-site habitat improvements on their own in order to create large and/or connected patches of habitat
- ☐ Manager has participated in, or invested in, off-site habitat improvements

**Level 4: Manager has made on-site habitat improvements, or participated in or invested in off-site habitat improvements as a part of a regional plan that includes other landowners. Manager has contributed to or participated in the implementation of (check all that apply):**

- ☐ Watershed council plan
- ☐ Eco-regional plan (such as those created by groups like The Nature Conservancy, etc.)
- ☐ Coordinated resource management plans
- ☐ Soil and water district plans
- ☐ Regional or statewide habitat/biodiversity plans
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Scorecard for wildlife habitat and biodiversity conservation

| | SCORE/LEVEL |
|---|---|
| Continuing education for biodiversity conservation | |
| Biodiversity plan | |
| Reducing on-site threats to wildlife | |
| Biodiversity conservation in plant production areas and cropped/grazed areas | |
| Biodiversity conservation in natural or unused areas | |
| Invasive species prevention and management | |
| Linking individual wildlife habitat conservation activities together | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 28 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## End Notes

[1] For example, fences may use smooth wire rather than barbed or woven wire, if this meets the operation's needs, or fences may be constructed to allow smaller wildlife to go under the barrier. Pasture fences may also be designed to allow large wildlife to pass through by spacing the top two wires at least 12 inches apart.

[2] For example, bird perches are created on field edges to encourage predatory birds; owl or bat boxes are constructed to establish predator populations; wooden blocks or bundles of stems or straws support native tunnel-nesting bees.

[3] Cover crops, especially winter covers, can displace invasive weeds, increase soil organic matter, provide temporary wildlife habitat, and control erosion control.

[4] Cooperating with surrounding landowners can help create a larger landscape that allows for movement of wildlife.

# IV-A. Evaluation Tool for Plant Production: Container Production

☐ N/A: This nursery has NO container plant production areas.

NOTE: Container production is defined as utilizing pots above ground, pots in-ground (i.e. pot-in-pot), grow bags, etc. Structures associated with container nursery production include Cravo™ retractable roof structures, flat roof structures without heat, mobile or fixed Quonset-style structures, propagation structures or any other structures without artificial environmental controls. Container production operations with field edges, scion orchards, display gardens, drainage areas and natural areas will also be evaluated under the Inspection tool for plant production: field production for these specific portions of the nursery. Container production operations with controlled environment structures such as those listed above, including tissue culture labs will also be evaluated under the Inspection tool for plant production: greenhouse production for these specific portions of the nursery.

Name of Operation:

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Date of Inspection:

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Site Inspector:

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## Instructions for Use

1. Each standard area is scored according to Food Alliance evaluation criteria. Points are given for performance of each evaluation criteria as measured against the indicators in Levels 1 through 4. Points are only earned for the highest Level achieved.

2. Scoring partial points is allowed. Example: Half of the operation is in a four-year crop rotation, a Level 3 practice. You may score 2.5 points, or half the increase between Level 2 and Level 3, as a result.

3. No points are earned for a criterion that is not applicable (N/A) to the operation or region. These points are subtracted from the total as explained on the score sheet. This ensures all operations are scored fairly, based on the actual facilities present and practices in use. A full explanation for any N/A is required.

4. For producer/managers reviewing this evaluation tool: This is only a guideline for your use and does not guarantee acceptance of your application.

5. Inspectors should make notes on each criterion describing how they arrived at decisions, <u>including means used to verify all specific producer/manager claims</u>. These notes provide important background, which will be carefully considered in the final certification decision. Please make note of any criteria or indicators that were not applicable and the reason. Also include any Best Management Practices (BMPs) implemented by the producer/manager that are not listed in this inspection tool. Please be sure to consult the endnotes provided, as they provide guidelines for inspection criteria.

6. Inspectors may request records or other materials to document any claims made by producer/manager.

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## Integrated pest, disease and weed management, and pesticide risk reduction

NOTE: we use 'pest' in its inclusive sense to refer to all insects, mites, nematodes, pathogens and weeds that are injurious to crop yield and quality

### Continuing education for IPM

**Level 1. No continuing education occurs. Nursery manager exhibits little or no knowledge of IPM strategies and tactics.**

**Level 2. Crop-specific publications are purchased or accessed by web site to aid in management decisions. Manager demonstrates knowledge of prevention, avoidance and biologically based IPM tactics, as well as the risks associated with IPM.**

**Level 3. As per Level 2, a manager is a licensed private applicator, and meets all continuing education requirements for licensed private applicators. Manager consults as needed crop advisors, extension agents, pest control consultants and/or other agricultural specialists, as well as independent technical information. Manager attends education seminars on the following subject matters, and can communicate plans, practices and mitigation measures (check <u>all that apply</u>):**

- ☐ Biological pest control
- ☐ Non-pesticide controls such as horticultural oils
- ☐ Low risk pesticides
- ☐ Variety selection
- ☐ Pesticide application safety
- ☐ Techniques to reduce amount of pesticides applied
- ☐ Pest and disease management
- ☐ Other:

**Level 4. As per Level 3, a manager participates (or has participated in the last 5 years) in on-site testing of pesticide reduction strategies to evaluate their usefulness. <u>Four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Ultra Low Volume (ULV) application equipment
- ☐ Pulse, fog or electrostatic application equipment
- ☐ Sticky traps
- ☐ Alternative weed controls (cocoa disks, geotextile disks, mulches, etc.)
- ☐ Light attractants
- ☐ Pheromone mating disrupters
- ☐ Propane burners for weed control in non-crop areas (i.e. bed perimeters, floors of structures, walkways, etc.)
- ☐ Summer heat sanitation of structures
- ☐ Biological pest controls

**SCORE:**

**VERIFICATION METHODS/NOTES:**

### IPM planning [1]

**Level 1. New container production pads are established without regard to environmental impact. Planning to prevent pests is rare. For ongoing pest control, curative measures are emphasized rather**

**than preventive, i.e. herbicides are applied to the same weeds year after year in more or less the same production pads.**

**Level 2. Crop losses to pests are reduced by the planned use of preventive measures. Nursery managers have a written nursery plant protection plan detailing the following provisions <u>or</u> can communicate the methods they use for: monitoring pests and their phenology, and weather conditions. Manager can identify pest management decisions based on this monitoring, including estimations of action thresholds. <u>Three or more</u> of the following indicators of IPM practices are evident (check <u>all that apply</u>):**

- ☐ Pest and disease resistant varieties are used.
- ☐ Production bed scouting is practiced by a certified IPM practitioner.
- ☐ Site selection is a criterion for container production-bed establishment.
- ☐ Canopy humidity management (plant density, irrigation, raised beds) is practiced.
- ☐ Insect/disease/weed population scouting informs pest management.
- ☐ Container production-bed sanitation is practiced as a preventative measure.
- ☐ Insect/disease/weed phenology/degree day modeling or other management tool informs pest management decisions.
- ☐ Trap crops are used for capturing harmful insects or as harbors for beneficial insects on container production-bed perimeters.
- ☐ Other:

**Level 3. As per Level 2, and <u>a total of four or more</u> from Level 2 apply (check <u>all that apply</u>). Manager can explain how IPM plan considers pest status and impacts, and how IPM plan employs prevention, avoidance and biologically based tactics in the context of clearly defined production goals. Manager can explain how IPM plan reduces impacts on beneficial and other natural resources in the context of clearly defined protection goals.**

**Level 4. As per Level 3, and <u>a total of five or more</u> from Level 2 apply (check <u>all that apply</u>). Manger can show that pest risks are exhibiting a downward trend.**

- ☐ Nursery is a member of the USNCP program

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Weather monitoring

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**Level 1. Weather is not monitored.**

**Level 2. Important weather parameters are monitored on site, or a site-specific weather service is employed. Pesticides are not applied when weather conditions are not appropriate (e.g. wind or precipitation episodes are expected, or during adiabatic barometric pressure conditions).**

**Level 3. As per Level 2, and varieties are selected to avoid weather-related diseases and disorders common to the location. Note: Provide notation when varieties are fixed.**

**Level 4. As per Level 3, and weather data is used to schedule pesticide applications for weather-dependent pests (phenology or degree-day models), irrigation, etc.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Crop monitoring/production-bed scouting

**Level 1. Crops/production pads are not monitored.**

**Level 2. Production records are maintained including inputs (e.g. chemicals, fertilizers, irrigation, etc.) yields, and quality. Nursery sets action thresholds to determine at what point treatment is necessary. Post-application evaluations are used to determine whether the treatment was effective, and what else needs to be done.**

**Level 3. As per Level 2, and crops/production pads are regularly scouted (weekly, or some other schedule sensible for the area) or sampled for insects, diseases, weeds and disorders. There is evidence that threshold monitoring is an important part of the pest management process. Two or more of the following indicators of monitoring/scouting are evident (check all that apply):**

- ☐ Pheromone traps
- ☐ Sticky traps
- ☐ Trap crops
- ☐ Light attractants
- ☐ Sweep nets
- ☐ Hand lenses/binoculars
- ☐ Flags marking container production bed sampling locations
- ☐ Scouting records or notes
- ☐ Other:

**Level 4. A total of three or more from Level 3 apply, and scouting records/crop-monitoring records are collected and maintained. These records are reviewed and used to inform and improve pest management strategies and/or scouting methods in subsequent seasons.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Lowest effective application rates/reducing application rates

**Level 1. Pesticide application rates are selected according to manufacturer's label.**

**Level 2. Reduced dosage strategies, such as spot spraying or alternate bed spraying, are employed when the target pest does not require complete coverage.**[2]

**Level 3. Applications are chosen based on four or more of the following circumstances (check all that apply):**

- ☐ To match density and severity of the pest (insect, disease, weed) problem
- ☐ To preserve beneficial insects
- ☐ When using concentrate (low-volume) applications
- ☐ To account for the density of plantings
- ☐ To account for the size of plants
- ☐ Border sprays
- ☐ Based on bed volume (canopy cover, plant size)
- ☐ Number of applications made
- ☐ Frequency of applications
- ☐ Novel spray technology is used.
- ☐ Spot applications are made (i.e. for weeds).
- ☐ Steam sterilization is used when possible and appropriate.
- ☐ Other:

**Level 4. As per Level 3, and, where organic pesticides are available and appropriate, synthetic pesticides are not used. All pesticide (synthetic and organic) toxicity rankings are maintained with pesticide records and are tabulated annually to indicate progress in reducing overall use of high toxicity pesticides.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

Pesticide selection, justification and resistance management

**Level 1. <u>All</u> of the following apply:**

- ☐ Only pesticides registered in the state as approved for target pests and crop are used.
- ☐ Pesticide mixtures prohibited by the label are not used.

**Level 2. As per Level 1. For applications made using equipment covering larger areas (e.g. boom applications) pesticide selections and recommendations are made by licensed applicators and/or licensed consultants. (N/A for spot applications of non-RU pesticides)**

**AND**

**All pesticides used that are at risk of developing pest resistance are mixed or alternated with other pesticides of a different chemical class/mode of action, starting with the first year of use. Pesticide rotation is documented.**

**Level 3. As per Level 2, and the timing of applications and selection of pesticide materials correspond with scouting records or monitoring.**

**Level 4. When a control measure is deemed necessary or required by quarantine, every effort is made to use beneficial organisms, cultural controls and/or reduced toxicity pesticides (labeled "Caution").**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Pesticide record keeping [3]

**Level 1. All legal requirements for pesticide record keeping are met.**[4]

**Level 2. As per Level 1, and pesticide records include <u>two or more</u> of the following additional pieces of information (check <u>all that apply</u>):**

- ☐ Crop growth stage
- ☐ Disease/Pest growth stage
- ☐ Purpose of the pesticide treatment, (i.e. target pest)
- ☐ Threshold used to guide pesticide treatment
- ☐ Current weather data, e.g. weather conditions on day of application
- ☐ Accumulated weather data, e.g. growing degree days to determine pest outbreaks
- ☐ Effectiveness of pesticide treatment
- ☐ Calibration records

**If commercial companies apply pesticides on this nursery operation, those records are requested and maintained on site.**

**Level 3. As per Level 2, and pesticide records include <u>a total of three or more</u> pieces of information from Level 2. Pesticide records are kept for longer than two years. Manager can relate how records are used year-to-year to examine trends and aid management decisions.**

**Level 4. As per Level 3, and pesticide records include <u>a total of five or more</u> pieces of information listed in Level 2. Nursery manager can relate which pesticides are no longer used on the nursery (and why), as well as newer pesticides that are being used/tried.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Hazardous material storage

**Level 1. Storage facilities for hazardous materials (crop and livestock pesticides, fertilizers, fuel, lubricants) meet legal requirements (where applicable). Hazardous materials are stored in original, clearly labeled containers.**

**Level 2. Storage is at least 150 ft. away from wells and 200 ft. away from surface water or sources of flame. <u>Four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Empty hazardous material containers are triple-rinsed before return to supplier, disposal in an approved recycling program or licensed landfill.
- ☐ Tank rinsate is sprayed out on labeled crops at labeled rate or less.
- ☐ Storage size and organization is adequate to separate flammables from other materials.
- ☐ Pesticides are organized by insecticides, fungicides, herbicides, fertilizers, etc.
- ☐ Containers are organized to prevent spillage when storing/removing materials.
- ☐ Non-hazardous materials (e.g., seed, livestock feeds) are kept away from hazardous materials.
- ☐ Storage area is clearly marked on the outside with warning signs.

- ☐ Flammables are kept out of direct sunlight.
- ☐ Dry materials are stored above liquids.
- ☐ Storage area is locked, and lock allows free exit from within when locked.
- ☐ Other (please specify):

**Level 3. As per Level 2, and a current written inventory is maintained and accessible in the event of an emergency. An emergency plan is posted, directing people what to do in case of an emergency. <u>Three or more</u> of the following apply:**

- ☐ Storage area has a sealed floor.
- ☐ Storage area is well ventilated (no strong chemical smell).
- ☐ Inventory is managed on a first-in, first-out basis.
- ☐ Operation has a written internal audit process for dealing storage and safety issues associated with hazardous materials.
- ☐ Other (please specify):

**Level 4. Hazardous wastes are limited due to success in eliminating use of pesticides labeled "Danger" or "Warning" <u>OR</u>, as per Level 3 and storage area is "state of the art" and <u>all</u> of the following apply:**

- ☐ Storage area is located in a separate facility or building.
- ☐ The storage area is diked/curbed to contain spills.
- ☐ Capacity of the diking system is at least 125% of the largest quantity stored.
- ☐ Shelves are lipped and of an impermeable material.
- ☐ Road access is adequate for delivery and emergency vehicles.
- ☐ Storage area is locked, and lock allows free exit from within when locked.
- ☐ Valves on (large) storage tanks are locked when not in use where other security measures are not in place (if applicable).
- ☐ Storage is downwind (prevailing wind) from nearby housing, play or livestock areas.

SCORE:

VERIFICATION METHODS/NOTES:

## Application equipment calibration and pesticide drift management

**Level 1. Application equipment that <u>can be calibrated</u> (insecticide, fungicide, herbicide growth regulator, fertilizer application equipment) is calibrated less than once per year. Applications are made only with equipment designed for that use. Nozzles are checked and replaced when necessary.**

**Level 2. Check the following, as applicable:**

- ☐ Products are mixed according to label directions.
- ☐ Application equipment is calibrated at the start of each season, if designed to be calibrated.
- ☐ Drift reduction strategies are used.
- ☐ Applications are made only under weather conditions that minimize off-site movement (e.g., low wind speed, not raining).
- ☐ Commercial application companies are hired on this operation.

**Level 3. As per Level 2, and**

- ☐ Spot applications are used exclusively on this operation. All of the following apply:

- ☐ Spot applications are limited to infested areas.
- ☐ Pressure gauge on applicator is calibrated regularly.
- ☐ Training is provided in proper use of equipment for efficient and effective application.

**OR all of the following apply:**

- ☐ The method of calibration is communicated to the inspector via written calibration records or verbal description. Note: Inspectors must feel confident that the method of calibration is adequate. Provide notation as to calibration methods used.
- ☐ When possible, calibration is adjusted to control amount applied and distribution of application (e.g., air blast sprayer nozzle distribution matches plant canopy size and shape).
- ☐ Buffer areas are established around fields to help reduce drift.
- ☐ Other (please specify):

**Level 4. As per Level 3, and at least one of the following apply:**

- ☐ Application equipment is calibrated more than once per season or uses technology that continuously calibrates.
- ☐ Technology is employed to keep particle size above 150 microns, **depending on the type of equipment and pesticide used**.
- ☐ Water sensitive paper and spray droplet analysis software is used to avoid drift or over-application.
- ☐ Pesticide application equipment is selected and maintained for site-specific conditions (e.g., hooded sprayers for windy sites).
- ☐ Storage is downwind (prevailing wind) from housing, play or livestock areas.
- ☐ An emergency plan is posted, directing people what to do in case of an emergency.

SCORE:

VERIFICATION METHODS/NOTES:

Scorecard for integrated pest, disease and weed management

| | SCORE/LEVEL |
|---|---|
| Continuing education for IPM | |
| IPM planning | |
| Weather monitoring | |
| Crop monitoring/production-bed scouting | |
| Lowest effective application rates/reducing application rates | |
| Pesticide selection, justification and resistance management | |
| Pesticide record keeping | |
| Hazardous material storage | |
| Application equipment calibration and pesticide drift management | |
| | |
| (1) TOTAL POINTS EARNED | |
| | |
| Total Points Available | 36 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |

| | |
|---|---|
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Soil and water conservation for all areas

### Continuing education for soil and water conservation

**Level 1. Manager demonstrates little or no knowledge about soil and water conservation. Current nursery operation reflects this knowledge gap, with no special planning or action considered to prevent soil erosion, conserve water, and protect water quality.**

**Level 2. Manager relies on general interest Ag publications (newspapers and general newsletters, etc.) to learn about soil and water conservation. In the course of the discussion, manager demonstrates a basic understanding of the issue area, e.g. water source, water quality, irrigation efficiency issues, irrigation equipment maintenance, etc.**

**Level 3. Manager uses technical, subject matter-specific information sources to aid in soil and water conservation. Where relevant national or state-wide best management practices (BMP's) exist, manager can describe which BMP's are applicable to their operation and how they have been incorporated. Manager can discuss and communicate technical knowledge of the following specific soil and water conservation issues (check all that apply):**

- ☐ Erosion prevention strategies
- ☐ Nutrient budgets
- ☐ Innovative irrigation systems and management
- ☐ Sediment/collection pond management
- ☐ Plant nutrient uptake
- ☐ Runoff management
- ☐ Soil quality monitoring
- ☐ Precision application of plant nutrients
- ☐ Use of slow-release/controlled release fertilizers
- ☐ Riparian habitat and buffer zones around surface waters
- ☐ Carbon sequestration in agricultural soils, (i.e. around production bed perimeters)
- ☐ Water conservation practices (list practices used)
- ☐ Other (please specify):

**Level 4. As per Level 3, and a total of four or more from Level 3 apply (check all that apply). Nursery participates (or has participated in the last 5 years) in on-site or laboratory testing of soil and/or water conservation strategies to evaluate their usefulness, or participates in a local or regional water quality council or organization. Nursery also documents performance of on-site soil and water conservation practices, including substrate management.**

SCORE:

VERIFICATION METHODS/NOTES:

Stream channel protection and restoration (applies where nursery operation has management control over

streams on or adjacent to nursery-managed property)

☐ N/A: There are no streams on or adjacent to nursery-managed property, **or** nursery has no management control over streams on or adjacent to nursery-managed property.

**Level 1. Channel manipulation -- such as filling, excavating and straightening – is done without consideration for stream channel morphology and function. Manager cannot describe impacts to stream functions, stream temperature and/or water quality resulting from on-site practices. Check all that apply:**

- ☐ Large and small woody debris are routinely removed from stream channels regardless of debris contribution to hydrologic or geomorphic function.
- ☐ Diversion structures present barriers for fish and wildlife.
- ☐ Floodplains and/or adjacent wetland areas appear in a degraded state (e.g., eroded areas of unusually sparse vegetation, inappropriately hummocky, etc.).
- ☐ Other (please specify):

**Level 2. Manager can describe appropriate management techniques for restoration and protection of stream channels and in-stream habitat. Manager can demonstrate that three or more management techniques are being implemented to protect and/or restore in-stream channels and in-stream habitat. List management techniques:**

**Level 3. As per Level 2, and manager has a basic written plan for, or can describe how, nursery operations protect, and, where possible, enhance stream channel morphology and function. Three or more of the following apply (check all that apply):**

- ☐ Existing levees have been removed or are set back to avoid encroaching on the floodplain.
- ☐ Unnatural in-stream barriers to fish and wildlife have been removed, or plans are in place to remove them.
- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.
- ☐ Sediment from runoff is removed prior to discharge into stream or waterway, e.g. containment ponds.
- ☐ Other (please specify):

**Level 4. As per Level 3, and active steps are being taken to restore stream channels to their natural condition. Channel manipulation, except for habitat restoration, is avoided to the greatest extent operationally feasible. A plan is in place to remove degraded wetlands from production and to restore natural functions to the greatest extent operationally feasible. A total of five or more items from Level 3 apply (check all that apply).**

SCORE:

VERIFICATION METHODS/NOTES:

Buffer strips around waterways (natural and constructed)

**Level 1. Production areas are established within 25 feet of the water's edge. Management alongside waterways allows the following to occur less than 25 feet from water's edge. Check all that apply:**

- ☐ There is evidence of sediment or effluent reaching waterways.
- ☐ Riparian and/or wetland areas appear in a degraded state (e.g., eroded areas of unusually sparse vegetation, inappropriately hummocky, etc.).

**Level 2. Production areas are more than 25 feet from water's edge . Production areas alongside waterways have been managed to achieve the following (all of the following apply):**

- ☐ Buffers are established between production areas and water's edge.
- ☐ Sedimentation appears to be contained by the buffer.
- ☐ Banks seem stable with no evidence of erosion and low risk of massive bank failure.

**Level 3. As the slope of the adjoining production area increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off. Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields and into surface waters. Check all that apply:**

- ☐ Grass filter strips have been established and maintained in production areas above waterway.
- ☐ Riparian buffer areas are an average of 50-feet or more in width.
- ☐ The use of buffers and upland erosion-control measures has resulted in the prevention of the movement of sediment, nutrients, organics and pesticides beyond the edge of the production area.
- ☐ Where water temperatures are an issue, buffer vegetation is managed to provide shade.
- ☐ Where appropriate, buffer vegetation provides wood recruitment, leaf litter supply, stream bank stability and filtration of sediment to maintain aquatic habitat.
- ☐ Other (please specify):

**Level 4. As per Level 3, and all of the following apply (where applicable):**

- ☐ Riparian zones are no less than 50 feet wide in any location.
- ☐ Riparian zones and buffer areas are adequately vegetated with a diverse mix of species containing greater than 50 percent of mixed multi-aged, native and non-invasive non-native species.
- ☐ Newly established ground cover plantings include a diverse mix of adapted grasses and forbs appropriate to the site.
- ☐ Ecologically appropriate trees and shrubs provide a second-story of cover and habitat, especially along stretches of streams or rivers in need of bank stabilization and shade. The use of native species is recommended when available and appropriate.
- ☐ Wetlands not currently in production and are protected by a minimum 50 foot uncultivated buffer. If 50 foot buffers are not operationally feasible, buffer must be provided to the greatest extent operationally feasible.

- ☐ Once established, practices are managed appropriately and maintained to ensure effectiveness, e.g. yearly maintenance to ensure that sheet flow is maintained across buffer, routine removal of invasive species.

SCORE:

VERIFICATION METHODS/NOTES:

Irrigation systems[5]

**Level 1. An irrigation system is used that appears inefficient and may allow water, nutrients, pesticides and/or soil particles to leave the container production-bed area or field.**

**Level 2. An irrigation system using <u>three or more</u> of the following improvements is used (check <u>all that apply</u>):**

- ☐ Irrigation system was designed by a professional.
- ☐ Overhead sprinkler systems use high efficiency drop nozzles.
- ☐ Sprinkler systems use low pressure, micro-sprinklers.
- ☐ Sprinkler systems are inspected and maintained twice a year.
- ☐ Irrigation heads/nozzles are uniform and properly maintained.
- ☐ Irrigation uniformity measurements are conducted on an annual basis to ensure uniformity of distribution.
- ☐ Drip emitter systems are used.
- ☐ Low-volume emitters, such as trickle tape, are used when appropriate for the container size and crop.
- ☐ Soil moisture sensors are used to monitor moisture.
- ☐ Low-volume emitters are pressure-compensated or the production block has pressure and flow gauges installed to ensure adequate operating pressures.
- ☐ Variable frequency drive pumps are used.
- ☐ A sub-irrigation system is used.
- ☐ An ebb and flow system is used.
- ☐ A weather data system or local weather station is used to estimate crop water use.
- ☐ Crop modeling is used to predict plant demand and irrigation schedules are based on weekly predictions
- ☐ Irrigation uniformity tests are conducted to ensure uniformity of distribution.
- ☐ Manager can demonstrate empirical irrigation scheduling techniques, e.g. routine monitoring of production areas for leaf color change, container weight or use of indicator plant species for signs of water stress.
- ☐ Leaching fraction (amount of water applied/amount of water leached) is measured several times a year to decrease over-irrigation, with a target leaching fraction of 0-15%.
- ☐ Other (please specify):

**Level 3. <u>A total of five or more</u> from Level 2 apply (check <u>all that apply</u>). If relevant national or state-wide best management practices (BMP's) exist, nursery can describe which BMP's are appropriate for their operation and how they have been incorporated.**[6]

**Level 4. As per Level 3, and <u>a total of seven or more</u> from Level 2 apply (check <u>all that apply</u>). Improvements in water use efficiency for the nursery are documented.**

SCORE:

VERIFICATION METHODS/NOTES:

Irrigation water conservation[7]

**Level 1. Water use or need is not monitored or planned.**

**Level 2. <u>Either</u>**

- ☐ water use is monitored and data is recorded.

**<u>OR</u>**

- ☐ annual planning for available water is a priority (as applies to regions with seasonal water availability).

**Level 3. As per Level 2, and nursery monitors the performance of their irrigation system equipment and routinely monitors it to verify that motors, pumps, and delivery systems are performing well and according to specifications. Updates and repairs are implemented as appropriate. If relevant national or state-wide best management practices (BMP's) exist, nursery can describe which BMP's are meaningful to their operation and how they have been incorporated. <u>Five or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Irrigation activities are initiated based on moisture testing and/or scheduled according to techniques outlined as per Level 2.
- ☐ Water use data is analyzed by managers and communicated to staff for the purpose of improving water conservation techniques.
- ☐ Irrigation practices consider substrate, container size and leaching fractions, and infiltration rates, as appropriate.
- ☐ Cyclic irrigation is used to increase the efficiency of irrigation events and water retention.
- ☐ Weather information is factored into the scheduling and timing of irrigation activities.[8]
- ☐ Crop demand or consumptive use is factored into irrigation activities, as appropriate.
- ☐ Drought resistant varieties are selected, where practicable.
- ☐ Plants are grouped within the nursery by size and water demand.
- ☐ Mulches and ground covers are used where appropriate.
- ☐ Water is collected and recycled for other uses using crowned, graveled pads, permeable road cloth, collection tile lines that direct run off to ponds or underground tanks on-site.
- ☐ Water is collected in a wetland or containment pond and either discharged slowly on-site or recycled with appropriate management practices.
- ☐ Manager participates in a local or regional body responsible for water issues such as over-allocation, groundwater recharge, stream flow, etc., e.g. water regulators, riverkeeper organizations, conservation districts, watershed councils.
- ☐ Other (please specify):

**If any available irrigation source is a salmon-bearing or potentially salmon-bearing stream, irrigation withdrawals should not significantly limit habitat conditions or harm fish. If it is reasonably possible that fish may be harmed by irrigation withdrawals, the grower should implement <u>one or more</u> of the following to the greatest extent operationally feasible:**

- ☐ Nursery attempts to reduce the amount of area planted with high water demand crops.

- ☐ Nursery utilizes permeable, woven-fabric cloth below benches in production areas and other non-environmentally controlled structures to allow irrigation water to slowly absorb back in to the ground beneath.
- ☐ Nursery has containment ponds in place and recycles at least 50% of irrigation runoff water.
- ☐ Nursery seeks alternative sources of water that do not limit habitat quality, particularly when required by fish during critical periods of their life cycle.
- ☐ Nursery considers leasing excess water rights to Oregon Water Trust, Washington Water Trust, or the Columbia Basin Water Transactions Program or similar program.
- ☐ Nursery uses non-potable water (captured rainwater, recycled graywater, reclaimed/treated wastewater, recycled/treated irrigation tailwater, etc.) for 70% of total irrigation volume.

**Level 4. A combined total of eight or more items from Levels 3 and 4 apply (check all that apply).**

- ☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits
- ☐ If in-stream work is done when there is water in the stream, water is diverted around the construction area to limit impacts to habitat. Turbidity curtains and other in-stream sediment control and containment measures are used to prevent sediment and construction debris from entering the waterway
- ☐ Nursery water is conserved by scheduling timing of water application in specific consideration of crop requirements, daily rainfall amounts, soil types and known evapotranspiration rates for the area.
- ☐ Soil/substrate moisture is monitored to provide timely information about moisture levels relative to crop needs, and used to schedule irrigation events and improve irrigation efficiency.
- ☐ Excessive leaching from irrigation events is minimized.
- ☐ Irrigation withdrawal volumes and rates are measured and recorded, with the intent of showing a reduction in water use over time or demonstrating that no further efficiencies are feasible

SCORE:

VERIFICATION METHODS/NOTES:

## Nutrient management

**Level 1. There is no nutrient management plan in place. Neither substrate/media nor plant tissues are monitored for nutrient levels.**

**Level 2. Fertilizer applications are performed using four or more of the following nutrient management practices (check all that apply):**

- ☐ Plant tissue testing is completed at regular intervals appropriate to the crop.
- ☐ Substrate/media pH is monitored and adjusted to ensure proper nutrient availability and uptake.
- ☐ Substrate/media and/or plant tissue tests are used to determine fertilizer application rates.
- ☐ Fertilizer applications comply with University or Extension crop and region-specific recommendations for rates and timing to minimize leaching and runoff while meeting plant needs.

- ☐ Manager considers substrate/media type, previous crop history, expected production time and yields, and manures/composts in fertilizer applications, and account for these in nutrient budgets.
- ☐ Fertilizer is incorporated into the substrate/media rather than applied on the surface.
- ☐ Split and/or dibbled applications are used.
- ☐ Organic fertilizers are used (e.g. animal manures, green manures, fish byproducts, kelp, bone meal, compost tea, ground up hazelnuts, meadowfoam byproducts, etc.) to meet but not exceed plant needs.
- ☐ Nursery cleans up and/or uses any spilled substrate/media from the canning and production process.
- ☐ Nursery can describe how their operation recycles nutrients, and how their operation balances nutrient inputs with nutrient use.
- ☐ Other (please specify):

**Level 3. A total of six or more from Level 2 apply (check all that apply). If relevant national or state-wide best management practices (BMP's) exist, nursery can describe which BMP's are appropriate for their operation and how they have been incorporated. A nutrient management plan is in place that includes two or more of the following (check all that apply):**

- ☐ Procedures for advanced nutrient application techniques designed to reduce waste (e.g., pre-incorporation, dibbling rather than broadcasting[9]).
- ☐ Consideration of fertilizer type for both plant nutrient needs and environmental impact (broadly defined).
- ☐ A procedure for recording observations on important indicators of success, like impacts on surface water on-site (e.g., algal blooms, excessive vegetation), etc.
- ☐ One of the following three nutrient requirements is met exclusively with organic, noncommercial sources: nitrogen (N), phosphorous (P), or potassium (K), to meet but not exceed plant needs.

**Level 4. A total of nine or more from Level 2 apply. Additionally, as per Level 3, and a total of three or more from Level 3 apply. The nutrient management plan is written. When available and as appropriate, the nutrient management plans is completed with the assistance of a professional. Important indicators of success are evident (check all that apply):**

- ☐ Written nutrient management plan identifies BMPs and manager can demonstrate implementation.
- ☐ Manager maintains records to demonstrate improvements in nutrient management over time.
- ☐ The majority of nutrients are provided by on-nursery sources.
- ☐ Use of precision fertilizer applications based on multiple samplings per production-bed or field (with varying application rates per production area or production block).
- ☐ Advanced substrate/media quality indicators related to nutrient retention and uptake (e.g., organic matter content, soil aggregation) are monitored and improvements documented.
- ☐ Nursery participates in education, cost-share and/or demonstration programs related to nutrient management planning.
- ☐ Nursery manger maintains records to demonstrate continuous improvement in nutrient management.
- ☐ Nursery uses no peat in any planting substrate/media, including for propagation of liners.
- ☐ Nursery uses no bark in any planting substrate/media, including for propagation of liners.
- ☐ Nursery reuses all uninfested/uninfected organic matter through composting and recycling, or by offering them for sale to the public.
- ☐ Nursery uses floating islands of aquatic and other plants to remediate nutrients and other contaminants in container ponds.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

Production area construction and maintenance

**Level 1. No fabric/erosion preventive material (gravel, concrete, etc.) in production areas. Beds are laid out with minimal regard to topography and drainage parameters. In pot-in-pot operations no drain lines are laid to aid in water movement away from plant material.**

**Level 2. Fabric/erosion preventative material(s) (gravel, concrete, etc.) line all production areas. Beds are laid out with regard to topography to maximize drainage while minimizing slope of each production area. Effort has been made to design beds to properly drain away from sensitive areas on-site (substrate/media stockpile, chemical storage building, etc.).**

**Level 3. As per level 2, and ditches receiving runoff, channel runoff to ponds for retention and reuse. <u>One or more</u> of the following apply:**

- ☐ Runoff channels/ditches vegetated to remove sediment from runoff
- ☐ Riparian buffer remains between production areas and natural areas
- ☐ Erosion control materials (fabric, gravel, etc.) evaluated and repaired/replace as needed (but evidence of a specific plan in place for this factor)
- ☐ If erosion noticed, drainage ditches and/or sediment containment areas are managed to prevent sediment moving off-site
- ☐ Ditches are routed to move un-treated runoff away from sensitive off-site areas (streams, wetlands)
- ☐ Other

**Level 4. As per level 3, and <u>a total of three or more</u> from level 3 apply. In addition, <u>all</u> of the following apply:**

- ☐ Ditches managed on a yearly basis. If dredged, sediment recovered is used to stabilize eroded areas on-site.
- ☐ Runoff from production areas captured and treated (prior to release – if released) using containment areas, constructed wetlands or some other technology to reduce pesticide, nutrient, and sediment loading in runoff.
- ☐ Sediment is routinely removed from sediment containment areas and disposed of appropriately.
- ☐ At least 50% of maximum daily runoff from irrigation is reused at the operation.
- ☐ Containment areas have appropriate bypass measures for runoff from storm events.
- ☐ If water is used for recycling, water is sanitized to control water-borne pathogens before reapplication to crops.
- ☐ Ponds are aerated or have appropriate aquatic vegetation to increase oxygen levels and to reduce algal bloom events.
- ☐ Containment pond nutrient levels are routinely monitored for pH and EC.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Substrate/media storage and handling

**Level 1. Substrate/media is poorly managed. Check <u>all that apply</u>:**

- ☐ Substrate/media stored on bare ground.
- ☐ Runoff from production areas flows through substrate/media stockpile.
- ☐ Substrate stored for > 1 year, soil moisture not maintained, pile not turned.
- ☐ Bags stored outside for more than 1 year with no shed/cover/pallets. Bags not adequately wrapped to prevent moisture penetration to substrate/media.
- ☐ Any substrate re-used from the operation is properly re-composted at an average temperature of 160ºF for 6 weeks.

**Level 2. Substrate stored on some surface (plastic, concrete) and kept at appropriate moisture levels, turned periodically, and used in a timely manner. Substrate/media in bags are stored on pallets and under some area to prevent precipitation from penetrating bags. No on-site water from any source (including rainfall) can flow through the substrate storage area.**

**Level 3. As per Level 2, and <u>one or more</u> of the following apply (check <u>all that apply</u>);**

- ☐ Substrate sample submitted to agricultural service laboratory for analysis before each crop potted up (or on a 3-month basis – as substrate soil chemistry changes with age).
- ☐ Substrate supplier to formulate a soilless-mix ideally suited to production conditions at their operation (i.e. lime, fertilizer additions are made based on knowledge of acidification rate of soil due to irrigation frequency and water quality parameters).
- ☐ Substrate sample from crops submitted quarterly to determine soil chemistry and nutrient availability – and to determine need for topdressing etc.

**Level 4. <u>All</u> from Level 3 apply (check <u>all that apply</u>). Grower actively works with fertilizer supplier to formulate controlled release fertilizer used in mix to provide desired soil chemistry (i.e. when a soil acidifies easily- a nitrate-based fertilizer is used instead of an ammonia based fertilizer to improve soil buffer capacity).**

SCORE:

VERIFICATION METHODS/NOTES:

## Scorecard for soil and water conservation for all areas

| | SCORE/LEVEL |
|---|---|
| Continuing education for soil and water conservation | |
| Stream channel protection and restoration | |
| Buffer strips around waterways | |
| Irrigation systems | |
| Irrigation water conservation | |
| Nutrient management | |
| Production area construction and management | |
| Substrate / media storage and handling | |

| | |
|---|---|
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 32 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Soil and water conservation for non-production areas

### Soil organic matter management for non-production areas

**Level 1. Organic matter is not monitored. Inorganic fertilizers supply the majority of plant nutrients. Fertilizers may be applied without regard to soil testing or crop monitoring.**

**Level 2. Organic matter is considered a factor in soil management. <u>Two or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ No-till, direct-seed, strip-till, or other restricted tillage practices are used.
- ☐ Seasonal cover crops that produce high volumes of organic material or root mass are used.
- ☐ Conservation cover (permanent vegetative cover) is planted between rows in orchards, vineyards, and other perennial row crops (e.g. scion orchards) is used.
- ☐ Mulches (natural or synthetic) are applied.
- ☐ Regular additions of organic matter (e.g. green manures, composts) are applied.
- ☐ Strip cropping with annuals and perennials is used.
- ☐ Least oxidizing inorganic fertilizers (e.g. urea versus anhydrous ammonia) are used.
- ☐ Perennial crops (e.g. scion orchards) are inter-rowed with cover crops.
- ☐ Fertilizers are applied using precision applications, banding applications and/or split applications.
- ☐ Precision agricultural-guidance systems are used.
- ☐ Other (please specify):

**Level 3. Organic matter management is a priority in soil management. <u>A total of four or more</u> from Level 2 apply (check <u>all that apply</u>). Changes in organic matter resulting from implemented practices are documented.**

**Level 4. As per Level 3, and nursery has eliminated use of synthetic fertilizers due to the successful implementation of soil quality and soil fertility-management activities. Soil tests are taken annually, and include organic matter content to score at this level. Nursery has developed and documented a plan for improvement on each site.**

SCORE:

VERIFICATION METHODS/NOTES:

Soil erosion prevention for non-production areas

**Level 1. All applicable federal, state and local erosion-related legal requirements are met (if applicable, for e.g., buffer zones, management of highly erodible areas).**

**Level 2. As per Level 1, and soil erosion is monitored regularly.**

If signs of erosion are present, check all that apply:

- ☐ Soil deposits exist at production area margins as evidence of erosion.
- ☐ Substrate/media deposits exist at production area margins as evidence of erosion.
- ☐ Channels and gullies are present.
- ☐ Erosion pedestals are present.
- ☐ Wind scoured areas, blowouts or depositional areas are present.
- ☐ Surface-crusted areas are visible.
- ☐ Other (please specify):

If erosion is present or reported, the manager must employ two or more of the following (check all that apply):

- ☐ Diversion ditches
- ☐ Terracing
- ☐ Contour buffer strips
- ☐ Cross wind trap strips or herbaceous wind barriers for wind erosion control
- ☐ Windbreaks/shelterbelts for wind erosion control
- ☐ Sediment trap (sediment pond or other sediment trapping structure)
- ☐ Other (please specify):

**Level 3. As per Level 2. Where erosion is present or reported, a total of four or more from Level 2 apply. Two or more of the following are integrated into the production system (check all that apply):**

- ☐ Mulches are used for weed suppression and moisture retention.
- ☐ Organic matter (e.g. manures, composts) is incorporated into container substrate/media.
- ☐ Perennial crops are integrated into the nursery.
- ☐ Containment ponds are utilized and the water reused on site.
- ☐ Other (please specify):

**Level 4. As per Level 3, and a total of three or more from Level 3 apply. Signs of erosion (see Level 2) are very minimal or absent. Practices are designed for each field and there is an evaluation of the effectiveness of implemented practices. All of the following apply, where appropriate:**

- ☐ To the greatest extent operationally feasible, nursery roads are stabilized with gravel, wood chips, or geotextile fabric or vegetative ground cover capable of withstanding nursery machinery.
- ☐ Nursery property is regularly inspected following storm events. Evidence of erosion or surface runoff during inspections are repaired within a reasonable timeframe, consistent with BMP's and the above standards.

SCORE:

VERIFICATION METHODS/NOTES:

## Tillage selection practices and soil compaction prevention for non-production areas

☐ N/A: There is no tillage on areas outside production pads, **or** nursery has no management control over tillage selection practices and soil compaction prevention on areas outside production areas.

**Level 1. The possible soil-degrading effects of soil disturbance are rarely considered on the nursery. Soil disturbance is conducted with minimal concern for soil productivity and compaction.**

**Level 2. The nursery considers tillage as a tool to be used judiciously. A tillage system that conserves soil (lessens soil erosion and compaction) and/or improves soil health is used on the nursery. Three or more of the following apply (check all that apply:**

- ☐ Non-inversion tillage methods are selected that result in crop residue left on the soil surface during critical erosion periods (e.g. conservation tillage).
- ☐ Tillage is restricted to specific portions of fields (e.g. strip tillage).
- ☐ Nursery activities that cause soil compaction are not performed when soils are wet.
- ☐ Tracked equipment rather than equipment with wheels are used to avoid destruction of the soil profile.
- ☐ Nursery traffic is generally controlled (e.g. use of field borders, tractor paths and lanes within fields for machinery).
- ☐ Nursery vehicles are operated with improved load distributions.
- ☐ Precision agricultural-guidance systems are used.
- ☐ Cover crops are planted to improve drainage and increase the health of the soil.
- ☐ Long-term crops, like alfalfa, are incorporated into the rotation.
- ☐ Manures or compost are added to soils on a regular basis to improve soil health.
- ☐ Conservation cover (permanent vegetative cover) is planted in non-production areas, e.g. display gardens.
- ☐ Other (please specify):

**Level 3. As per Level 2, and a total of four or more from Level 2 apply (check all that apply). Evidence of success is seen and/or documented through photography, monitoring records, etc. Check all that apply:+**

- ☐ Nursery records show gradual increases in soil organic matter.
- ☐ Nursery uses equipment designed to reduce soil compaction.
- ☐ Monitoring records show a decrease in soil compaction.
- ☐ Evidence of erosion is minimal or not present.
- ☐ Soil quality indicators are all positive.
- ☐ Soil health appears good.
- ☐ Nursery deep plows to reduce hardpan and works the ground when soil moisture allows for the least amount of compaction.
- ☐ Other (please specify):

**Level 4. As per Level 3 and the manager selects production systems based on any of the following (check all that apply):**

- ☐ Nursery is in the process of converting, or has recently converted acreage to perennial crops.
- ☐ The nursery is entirely in no-till, direct-seed, or other agricultural production system that uses crop rotations and other strategies to limit inputs.
- ☐ Nursery evaluates and documents improved efficiency of crop production resulting from adoption of conservation practices.
- ☐ Nursery uses drain tiles at least 30 feet on-center.

SCORE:

VERIFICATION METHODS/NOTES:

Scorecard for soil and water conservation for non-production areas

| | SCORE/LEVEL |
|---|---|
| Soil organic matter management | |
| Soil erosion prevention | |
| Tillage selection practices and soil compaction prevention | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 12 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Operational efficiencies

Continuing education for operational efficiencies

**Level 1. Manager demonstrates little or no knowledge about recycling/reuse options, energy efficiency, low-impact packaging, or other means for achieving efficiencies and reducing negative social and environmental impacts of the nursery operation. Current nursery operation reflects this knowledge gap, with no special planning or actions considered to capture efficiencies and reduce negative social and environmental impacts of the nursery operation.**

**Level 2. Manager relies on general interest Ag publications (newspapers and general newsletters, etc.) to learn about operational efficiencies. In the course of the discussion, manager demonstrates a basic understanding of the issue area.**

**Level 3. Manager uses technical, subject matter-specific information sources to aid in increasing operational efficiencies. Manager can discuss these issues and communicates technical knowledge of the following specific operational efficiencies issues (check <u>all that apply</u>):**

- ☐ Recycling/reuse of materials
- ☐ Efficient use of electricity
- ☐ Low-impact packaging
- ☐ Fuel efficient nursery machinery
- ☐ Other (please specify):

**Level 4. As per Level 3, and manager participates (or has participated in the last 5 years) in either on-site testing of operational efficiencies strategies to evaluate their usefulness, or, participates in a**

**local or regional water quality council or organization. Manager also documents performance of on-site operational efficiencies practices.**

SCORE:

VERIFICATION METHODS/NOTES:

Reuse and recycle

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**Level 1. Nursery neither recycles nor reuses any waste or byproducts from the operation. Manager is not informed about the issue.**

**Level 2. Manager communicates some knowledge of recycling or reuse of waste or byproducts from the nursery operation. Nursery has a limited plan or systematic method for recycling or reusing waste or byproducts from the nursery operation. Two or more of the following apply (Check all that apply):**

- ☐ Nursery recycles all paper products including office paper, refuse from lunch rooms, field trash, old catalogs, stationary, etc.
- ☐ Manager communicates some knowledge of recycling or reuse of waste or byproducts from the nursery operation.
- ☐ Nursery reuses recycled shredded paper from newsprint industry.
- ☐ Nursery recycles metals.
- ☐ Other (please specify):

**Level 3. Manager communicates detailed knowledge of some area of recycling or reuse of waste or byproducts from the nursery operation. Nursery has a detailed plan or systematic method for recycling or reusing waste or byproducts from part of the nursery operation. Where composting is practiced, manager can describe the composting methodology or has written plan for ensuring successful results. Six or more of the following apply (Check all that apply):**

- ☐ Nursery composts, recycles and reuses some plant and/or yard debris.
- ☐ Nursery recycles and reuses some equipment oils.
- ☐ Nursery recycles and reuses some grain or hay straw after harvest.
- ☐ Nursery recycles and reuses some other local waste or byproducts.
- ☐ Nursery uses sustainable substrate/media amendments that do not include peat moss.
- ☐ Nursery is committed to using renewable energy sources to meet 10% of electricity demands or engages in at least a two-year contract for the purchase of 35% of electricity from renewable energy sources.
- ☐ Nursery captures and reuses some rainwater runoff from roofs and parking lots.
- ☐ Nursery recycles wood pallets.
- ☐ Nursery recycles some plastics, (e.g. triple rinsed pesticide containers, poly from greenhouses, used pots, shade cloth, tying tape, grow tubes, tree labels, packaging, banding, etc.).
- ☐ Nursery recycles some cardboard products.
- ☐ Nursery recycles some tree-tying twine.
- ☐ Nursery uses some non-synthetic tying materials.
- ☐ Nursery reuses cedar shavings from cedar shingle industry.
- ☐ Nursery reuses sawdust from lumber industry.
- ☐ Nursery reuses or sells some pruned materials.
- ☐ Nursery cleans up and/or uses any spilled substrate/media from the canning and production process.

- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of recycling or reuse of most of the waste or byproducts from all parts of the nursery operation. Manager has a detailed plan, or systematic method of recycling or reusing most of the waste or byproducts from all parts of the nursery operation. Eight or more of the following apply (check all that apply):**

- ☐ Nursery does not recycle or reuse any quarantined plant or yard debris.
- ☐ Nursery recycles and reuses equipment oils to the fullest extent possible.
- ☐ Nursery composts, recycles and reuses plant and/or yard debris fullest extent possible.
- ☐ Nursery recycles and reuses grain or hay straw after harvest fullest extent possible.
- ☐ Nursery recycles and reuses other local waste or byproducts.
- ☐ Nursery uses sustainable substrate/media amendments that do not include peat moss.
- ☐ Nursery is committed to reducing greenhouse gas emissions by using renewable energy sources to meet 10% of electricity demands or engages in at least a two-year contract for the purchase of 35% of electricity from renewable energy sources.
- ☐ Nursery captures and reuses rainwater runoff from roofs and parking lots to the fullest extent possible.
- ☐ Nursery recycles wood pallets.
- ☐ Nursery recycles all plastics including triple rinsed pesticide containers, poly from greenhouses, used pots, shade cloth, tying tape, grow tubes, tree labels, packaging, banding, etc.
- ☐ Nursery recycles all cardboard products.
- ☐ Nursery recycles all tree-tying twine.
- ☐ Nursery uses only non-synthetic tying materials.
- ☐ Nursery reuses cedar shavings from cedar shingle industry.
- ☐ Nursery reuses sawdust from lumber industry.
- ☐ Nursery reuses or sells 100% of pruned materials.
- ☐ Nursery conducts a waste audit to identify the weight or volume of on-going consumables and the reuse, recycling, or composting of at least 50% of the on-going consumables waste stream
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Energy efficiency

**Level 1. Nursery neither employs nor considers energy efficiency in the nursery operation. Manager is not informed about the issue. Check all that apply:**

- ☐ Manager has no plan, or systematic method of auditing energy use in the nursery operation.
- ☐ Manager communicates no knowledge of energy efficiency in the nursery operation.
- ☐ Other (please specify):

**Level 2. Manager communicates some knowledge of energy efficiency in the nursery operation. Nursery has a limited plan or systematic method of energy efficiency auditing in the nursery operation.**

**Level 3. Manager communicates detailed knowledge of some area of energy efficiency in the nursery operation. Nursery has a detailed plan or systematic method of energy efficiency auditing in part of the nursery operation. Four or more of the following apply (check all that apply):**

- ☐ Nursery demonstrates that the energy use during the three most recent years is at least 10% less than the average energy use over the previous ten years.
- ☐ Nursery partners with an energy efficiency alliance or similar organization to prioritize nursery efforts for resource management.
- ☐ Nursery uses high efficiency measures when operating its equipment.
- ☐ Nursery uses occupancy sensors, fluorescent, metal halide or other energy efficient lighting and audits their use.
- ☐ Nursery uses variable frequency drive pumps and controls, and variable speed pumps for irrigation, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses cyclic irrigation, drip irrigation and/or high efficiency sprinklers and nozzles for irrigation.
- ☐ Nursery uses high efficiency heating, air conditioning and ventilation systems in its offices, greenhouses and warehouses, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses high efficiency insulation in its offices, greenhouses (double poly) and warehouses including thermal curtains where appropriate.
- ☐ Nursery utilizes best management practices for compliance with the Climate Friendly Nurseries Project (CFNP).[10]
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of energy efficiency auditing in all parts of the nursery operation. Nursery has a detailed plan or systematic method of energy efficiency auditing in all parts of the nursery operation, with a specific timeline for implementation. <u>Five or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Nursery demonstrates that the energy use during the three most recent years is at least 25% less than the average energy use over the previous ten years.
- ☐ Nursery partners with an energy efficiency alliance or similar organization to prioritize efforts for nursery resource management.
- ☐ Nursery uses occupancy sensors, fluorescent, metal halide or other energy efficient lighting and audits their use.
- ☐ Nursery uses variable frequency drive pumps and controls, and variable speed pumps for irrigation, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses drip irrigation and/or high efficiency sprinklers and nozzles for irrigation.
- ☐ Nursery uses high efficiency heating, air conditioning and ventilation systems in its offices, greenhouses and warehouses, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses cogeneration systems to generate at least 50% of energy used.
- ☐ Nursery uses fuel cells.
- ☐ Nursery uses solar panels.
- ☐ Nursery uses geothermal energy.
- ☐ Nursery uses a log-fuel generator.
- ☐ Nursery uses a pellet fuel generator.
- ☐ Nursery uses a clean coal generator.
- ☐ Nursery uses a steam generator for energy.
- ☐ Nursery uses steam for heat delivery.
- ☐ Nursery uses steam for sterilization of containers and substrate/media.
- ☐ Nursery uses biodegradable paint on shade products.
- ☐ Nursery uses biodegradable, reusable, woven shade fabric wave length-colored for cooling and light spectrum management.

- ☐ Nursery uses high efficiency insulation in its offices, display areas and warehouses including thermal curtains where appropriate.
- ☐ Nursery uses bicycles, 4-wheelers, Segways™, motorized carts or other means of conveyances for employees around the operation.
- ☐ Nursery uses conveyors, carousels or other means of mechanical movers for moving plant materials around the nursery, as appropriate.
- ☐ Nursery uses rolling benches, stack benches or other mechanical means for moving what would otherwise be fixed structures to lessen employee-related repetitive movement injuries.
- ☐ Nursery utilizes best management practices for compliance with the Climate Friendly Nurseries Project (CFNP).
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Low-impact packaging

**Level 1. Nursery neither employs nor considers low-impact packaging in the nursery operation. Manager is not informed about the issue. Check all that apply:**

- ☐ Manager has no plan, or systematic method of employing the use of low-impact packaging in the nursery operation.
- ☐ Manager communicates no knowledge of the use of low-impact packaging in the nursery operation.
- ☐ Other (please specify):

**Level 2. Manager communicates some knowledge of the use of low-impact packaging in the nursery operation. All of the following apply:**

- ☐ Nursery has a limited plan, or systematic method of using low-impact packaging in the nursery operation.
- ☐ Manager communicates some knowledge of how to employ or use low-impact packaging in the nursery operation.
- ☐ Other (please specify):

**Level 3. Manager communicates detailed knowledge of some area of use of low-impact packaging in the nursery operation. Two or more of the following apply (check all that apply):**

- ☐ Manager has a detailed plan for using low-impact packaging in part of the nursery operation and can demonstrate implementation of that plan.
- ☐ Manager has a systematic method for using low-impact packaging in part of the nursery operation.
- ☐ Nursery sources materials from suppliers that use low-impact packaging.
- ☐ Nursery sources materials in bulk or otherwise to reduce packaging of sourced materials.
- ☐ Manager communicates detailed knowledge of using low-impact packaging in some parts of the nursery operation.
- ☐ Nursery uses containers made with recycled plastic.
- ☐ Nursery uses containers made with biodegradable materials, e.g. recycled paper, feather waste byproducts, etc.
- ☐ Nursery uses roller containers for green roof applications.

- ☐ Nursery uses containers made with recycled paper pulp byproducts.
- ☐ Nursery uses biodegradable plastic containers.
- ☐ Nursery demonstrates that the use of low-impact packaging or reduction in packaging during the three most recent years is equal to 25% or more of the average amount of conventional packaging used over the previous ten years.
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of all area of use of low-impact packaging in the nursery operation. <u>Four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Manager has a detailed plan for using low-impact packaging in all parts of the nursery operation and can demonstrate implementation of that plan.
- ☐ Manager has a systematic method of using low-impact packaging in all parts of the nursery operation and can demonstrate implementation of that method.
- ☐ Manager communicates detailed knowledge of using low-impact packaging in all parts of the nursery operation.
- ☐ Nursery demonstrates its willingness to reduce the amount of conventionally packaged products used in their daily operation.
- ☐ Nursery demonstrates a reliable method of monitoring their use of conventionally packaged products.
- ☐ Nursery demonstrates a method to minimize waste streams while maximizing the reuse and recycling of materials in their daily operation.
- ☐ Nursery sources materials from suppliers that use low-impact packaging.
- ☐ Nursery sources materials in bulk or otherwise to reduce packaging of sourced materials.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

Scorecard for operational efficiencies

| | SCORE/LEVEL |
|---|---|
| Continuing education for reuse/recycling materials | |
| Reuse and recycle | |
| Energy efficiency | |
| Low-impact packaging | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 16 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Fixed Criteria

### No GMO seeds or plant materials are used

**Check the following as applicable:**

- ☐ No GMO seeds or plant materials are produced on the nursery.
- ☐ GMO seeds and/or plant materials are produced on the nursery.

**Check the verification method used:**

- ☐ Records show the plant varieties grown. All are non-GMO varieties.
- ☐ There are currently no GMO varieties for the crops grown.
- ☐ Other (please specify):

NOTES:

### No prohibited pesticides used

**Food Alliance Prohibited Pesticide List**

The Food Alliance Prohibited Pesticide List (PPL) is based on the WHO Recommended Classification of Pesticides by Hazard (2009). The PPL consists of materials classified as extremely hazardous or highly hazardous on the WHO list that are registered for use by the USEPA. Exceptions will allowed if the use of a material on the PPL is required by law or by required for export. The PPL is in Appendix 1, at the end of the evaluation materials.

**Check the following as applicable:**

- ☐ Pesticide records indicate that none of the pesticides listed in the Reducing Pesticide Usage section certification criteria are used on this nursery operation.
- ☐ Other (please specify):

**Check the verification method used:**

- ☐ Visual inspection of hazardous material storage confirms no presence of prohibited pesticides.
- ☐ Other (please specify):

NOTES:

### Continual Improvement

**Check the following for renewing applications only (as applicable):**

- ☐ 1-year improvement goal from previous application met.
- ☐ 3-year improvement goal from previous application met.
- ☐ 5-year improvement goal from previous application met.

# Appendix 1: Food Alliance Prohibited Pesticide List

Class Ia and Ib pesticides registered for use by the USEPA (See: The WHO recommended classification of pesticides by hazard and guidelines to classification: 2009.) ©Food Alliance 2011

| EPA Reg No. | Product Name | WHO Mixture Classification | Chemical Name |
|---|---|---|---|
| 5481-448 | AMVAC BIDRIN 8 WATER MISCIBLE INSECTICIDE | Ib | Dicrotophos |
| 10163-95 | AZINPHOS METHYL TECHNICAL | Ib | Azinphos-methyl |
| 66330-233 | AZINPHOSMETHYL 50W | Ib | Azinphos-methyl |
| 5481-9032 | AZTEC 3.78% GRANULAR INSECTICIDE | Ib | Phostebupirim |
| 5481-9028 | AZTEC 4.67% GRANULAR | Ib | Phostebupirim |
| 5481-552 | BIDRIN XP | Ib | Dicrotophos |
| 100-987 | BRODIFACOUM TECHNICAL | Ia | Brodifacoum |
| 270-371 | BROMADIOLONE 2.5% CONCENTRATE | Ib | Bromadiolone |
| 270-374 | BROMADIOLONE TECHNICAL | Ia | Bromadiolone |
| 47629-9 | BROMETHALIN TECHNICAL | Ia | Bromethalin |
| 279-3060 | CARBOFURAN TECHNICAL | Ib | Carbofuran |
| 67760-43 | CHEMINOVA METHYL PARATHION 4 EC | Ib | Methyl parathion |
| 4787-33 | CHEMINOVA METHYL PARATHION TECHNICAL | Ib | Methyl parathion |
| 34704-259 | CLEAN CROP PHORATE 20G | Ib | Phorate |
| 13808-7 | COMPOUND 1080 LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 56228-26 | COMPOUND 1080 TECHNICAL (LPC) | Ia | 1080 |
| 47000-144 | CO-RAL COUMAPHOS 25% DUST BASE | Ib | Coumaphos |
| 11556-98 | CO-RAL COUMAPHOS FLOWABLE INSECTICIDE | Ib | Coumaphos |
| 11556-123 | CO-RAL PLUS INSECTICIDE CATTLE EAR TAG | Ib | Coumaphos |
| 11556-148 | CORATHON | Ib | Coumaphos |
| 11678-53 | COTNION-METHYL | Ib | Azinphos-methyl |
| 66222-11 | COTNION-METHYL AZINPHOS METHYL 50W | Ib | Azinphos-methyl |
| 11556-11 | COUMAPHOS TECHNICAL | Ib | Coumaphos |
| 5481-545 | COUNTER 15G SYSTEMIC INSECTICIDE-NEMATICIDE | Ib | Terbufos |
| 5481-562 | COUNTER 20G | Ib | Terbufos |
| 5481-547 | COUNTER CR | Ib | Terbufos |
| 5481-546 | COUNTER TECHNICAL POISON SOIL INSECTICIDE | Ia | Terbufos |
| 5481-447 | DICROTOPHOS TECHNICAL | Ib | Dicrotophos |
| 47629-12 | DIFENACOUM TECHNICAL | Ia | Difenacoum |
| 7173-204 | DIFETHIALONE TECHNICAL | Ia | Difethialone |
| 61282-5 | DIPHACINONE, TECHNICAL GRADE FOR MANUFACTURING ONLY | Ia | Diphacinone |
| 352-361 | DU PONT METHOMYL COMPOSITION | Ib | Methomyl |
| 5481-492 | DUPONT FORTRESS TECHNICAL | Ia | Chlorethoxyphos |
| 352-342 | DUPONT LANNATE SP INSECTICIDE | Ib | Methomyl |
| 352-366 | DUPONT METHOMYL TECHNICAL | Ib | Methomyl |
| 352-400 | DUPONT OXAMYL TECHNICAL 42 INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 5481-9043 | ETHOPROP TECHNICAL | Ib | Ethoprop |

| | | | |
|---|---|---|---|
| 5481-493 | FORTRESS 5G GRANULAR INSECTICIDE | Ib | Chlorethoxyphos |
| 279-2876 | FURADAN 4F INSECTICIDE/NEMATICIDE | Ib | Carbofuran |
| 279-3038 | FURADAN 85 DB | Ib | Carbofuran |
| 279-3310 | FURADAN LFR INSECTICIDE/NEMATICIDE | Ib | Carbofuran |
| 10163-78 | GOWAN AZINPHOS-M 50 WSB | Ib | Azinphos-methyl |
| 66222-162 | GUTHION SOLUPAK 50% WETTABLE POWDER INSECTICIDE | Ib | Azinphos-methyl |
| 11678-70 | GUTHION TECHNICAL INSECTICIDE | Ib | Azinphos-methyl |
| 61282-38 | HOPKINS COV-R-TOX ENCAPSULATED WARFARIN - 50% TECHNICAL | Ib | Warfarin |
| 61282-39 | HOPKINS WARFARIN TECHNICAL RODENTICIDE | Ib | Warfarin |
| 13808-8 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 33858-2 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 35975-2 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 35978-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 39260-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 39508-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 56228-15 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 56228-32 | M-44 CYANIDE CAPSULES ARCTIC FOX | Ib | Sodium cyanide |
| 10707-10 | MAGNACIDE B MICROBIOCIDE | Ib | Acrolein |
| 10707-9 | MAGNACIDE H HERBICIDE | Ib | Acrolein |
| 7173-174 | MAKI TECHNICAL | Ia | Bromadiolone |
| 7946-11 | MAUGET INJECT-A-CIDE B | Ib | Dicrotophos |
| 10163-252 | MESUROL 75 WDG | Ib | Methiocarb |
| 10163-229 | MESUROL 75% CONCENTRATE | Ib | Methiocarb |
| 56228-33 | MESUROL 75% WETTABLE POWDER AVERSIVE CONDITIONING EGG TREATMENT | Ib | Methiocarb |
| 10163-231 | MESUROL 75-W | Ib | Methiocarb |
| 10163-230 | MESUROL TECHNICAL INSECTICIDE | Ib | Methiocarb |
| 100-530 | METHIDATHION TECHNICAL | Ib | Methidathion |
| 10163-245 | METHIDATHION TECHNICAL | Ib | Methidathion |
| 5481-9041 | MOCAP EC NEMATICIDE - INSECTICIDE | Ib | Ethoprop |
| 279-2862 | NIAGARA FURADAN 75 BASE | Ib | Carbofuran |
| 5481-8980 | PHORATE 20 G | Ib | Phorate |
| 9779-293 | PHORATE 20-G | Ib | Phorate |
| 5481-8979 | PHORATE TECHNICAL INSECTICIDE | Ia | Phorate |
| 83100-28 | ROTAM METHOMYL 90SP INSECTICIDE | Ib | Methomyl |
| 81598-9 | ROTAM METHOMYL TECHNICAL | Ib | Methomyl |
| 7173-75 | ROZOL RODENTICIDE TECHNICAL POWDER | Ia | Chlorophacinone |
| 72500-15 | SLN PHARMACHEM WARFARIN | Ib | Warfarin |
| 5481-561 | SMARTCHOICE 5G | Ib | Chlorethoxyphos |
| 35975-4 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 35978-8 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 39508-2 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 46779-1 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |

| | | | |
|---|---|---|---|
| 56228-22 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 36029-14 | STRYCHNINE ALKALOID N.F. | Ib | Strychnine |
| 27995-1 | STRYCHNINE ALKALOID N.F. POWDER | Ib | Strychnine |
| 37259-1 | STRYCHNINE ALKALOID NFX | Ib | Strychnine |
| 5481-9031 | TEBUPIRIMPHOS TECHNICAL | Ia | Phostebupirim |
| 12455-88 | TECHNICAL BRODIFACOUM | Ia | Brodifacoum |
| 12455-70 | TECHNICAL BROMADIOLONE | Ia | Bromadiolone |
| 12455-92 | TECHNICAL BROMETHALIN | Ia | Bromethalin |
| 12455-25 | TECHNICAL DIPHACINONE | Ia | Diphacinone |
| 61282-1 | TECHNICAL DIPHACINONE | Ia | Diphacinone |
| 12455-26 | TECHNICAL WARFARIN | Ib | Warfarin |
| 100-1015 | TEFLUTHRIN TECHNICAL | Ib | Tefluthrin |
| 264-330 | TEMIK BRAND 15G ALDICARB PESTICIDE | Ib | Aldicarb |
| 5481-526 | THIMET 10-G SOIL AND SYSTEMIC INSECTICIDE | Ib | Phorate |
| 5481-527 | THIMET 15-G SOIL AND SYSTEMIC INSECTICIDE | Ib | Phorate |
| 5481-530 | THIMET 20-G | Ib | Phorate |
| 5481-528 | THIMET MC - 85 FOR MANUFACTURING PURPOSES ONLY | Ia | Phorate |
| 5481-529 | THIMET TECHNICAL FOR MANUFACTURING PURPOSES ONLY | Ia | Phorate |
| 352-532 | VYDATE C-LV INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 352-372 | VYDATE L INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 69826-1 | WARFARIN TECHNICAL | Ib | Warfarin |
| 3282-32 | WINCON WARFARIN TECHNICAL | Ib | Warfarin |
| 61282-3 | ZINC PHOSPHIDE 93 | Ib | Zinc phosphide |

NOTE: WHO classification is based on acute risks to human health. Class Ia = extremely hazardous, Class Ib = highly hazardous.

## Appendix 2: Check list for combined Food Alliance and Salmon Safe Certification of Nursery and Greenhouse Operations

I. For each production system, the following boxes must ALL BE CHECKED in order for the applicant to claim Salmon Safe certification, to make Salmon Safe-related marketing claims or to use any Salmon Safe promotional materials, such as seals, etc. If the operation does not use a particular production system, mark that system NA.

A. Field Production

Standard Area: **Soil and water conservation**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- ☐ As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- ☐ Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

- ☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

- ☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

B. Container Production

Standard Area: **Soil and water conservation for all areas**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways.

### C. Greenhouse Production

Standard Area: **Soil and water conservation for inside greenhouses**

Evaluation Criteria: **Irrigation water conservation**

☐ Greenhouse works on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Standard Area: **Soil and water conservation for all areas outside greenhouses**

Evaluation Criteria: **Stream channel protection and restoration**

☐ Stream crossings avoid filling, excavating, or straightening stream channels.

☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate

☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.

☐ Unnecessary removal of woody debris is avoided.

☐ Disconnection of off-channel wetlands and ponds is avoided.

☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.

☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

☐ As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.

☐ Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

## II. Salmon Safe HIGH HAZARD PESTICIDE LIST

Certain pesticides are a serious threat to salmon and other aquatic life. In addition to killing fish, these pesticides at sub-lethal concentrations can stress juveniles, alter swimming ability, interrupt schooling behaviors, cause salmon to seek sub-optimal water temperatures, inhibit seaward migration and delay spawning. All of these behavioral changes ultimately affect survival rates.

The following table (next page) lists many of the pesticides known to cause problems for salmon and other fish. The list includes chemicals that could be used in nursery and greenhouse applications that are listed with the EPA in various risk categories. Use this chart to help identify pesticides that require

special consideration. Please note that this chart lists only some of the currently available pesticides in common usage.

A nursery using any of the pesticides indicated as "High Hazard" below may be certified only if Salmon-Safe's variance request form is submitted *in advance* demonstrating a clear need for use of the pesticide, that no safer alternatives exist, that the method of application (such as timing, location, and amount used) represents a negligible risk to water quality and fish habitat, *and* that the landowner has consulted with university extension or comparable technical expert.

### Salmon Safe "HIGH HAZARDOUS" Agricultural Pesticides

1,3-dichloropropene
2,4-D
Abamectin
Acephate
Altacor
Atrazine
Azinphos-Methyl
Bensulide
Bentazon
Bifenazate
Bifenthrin
Bromoxynil
Carbaryl
Carbofuran
Carboximide
Carboxin
Carfentrazone-ethyl
Chlorothalonil
Chlorpyrifos
Copper Sulfate*
Coumaphos
Cyhalothrin
Cypermethrin
Diazinon
Dicamba
Dichlobenil
Diclofop-methyl
Diflubenzuron
Dimethoate
Dimethylformamide
Disulfoton
Dithane
Diuron
Dodine P
Emamectin Benzoate
Esfenvalerate
Ethoprop
Extoxazole Technical
Fenamiphos
Fenbutatin-Oxide
Fenpropathrin P
Fenpyroximate
Flumioxazin P
Hexythiazox P
Imidacloprid
Iprodione
Linuron
Malathion
Mancozeb/Penncozeb
Methamidophos
Methidathion
Methomyl
Methyl Parathion
Metolachlor
Metribuzin
Molinate
Nale
Norflurazon
Oryzalin
Oxyfluorfen
Paraquat Dichloride
Parathion
Pebulate
Pendimethalin
Permethrin
Phorate
Phosmet
Prometryn
Propargite
Propiconazole
Pyriproxyfen P
Rimon
Quintozene
Rimon
Simazine
Spirodiclofen
Tebuthiuron
Terbacil
Terbufos
Thiacloprid
Thiocarbamate
Thiophanate-methyl P
Thiram
Triclopyr
Trifluralin

*Salmon-Safe restrictions apply to any copper-containing pesticide including copper hydroxide, copper ammonium hydroxide, copper carbonate, and copper oxide, and others.

**P:** Pending Review. This list is based on EPA hazard level for fish and fish habitat. It is revised as pesticide registrations are updated and as more environmental data becomes available

## End Notes

[1] This criterion should allow for flexibility in record keeping with larger vs. smaller nursery operations. Nursery managers or tenant growers need to have written documentation. Satisfactory progress should be made to address nursery features and operations that may degrade salmon habitat such as irrigation ponds, road crossings, or concrete-lined streams. These restoration efforts may include those required by the evaluation team to address deficiencies, and efforts already being undertaken by nursery management. This progress may include prioritized project lists for the nursery, plans for specific projects, or other requirements determined by the review team. There is demonstrated progress in correcting management deficiencies.

[2] Appling pesticides at lower than labeled rates/coverage can lead to pest resistance.

[3] Pesticide records are a key element of the inspection process and are the only way inspectors can verify activities in the past.

[4] USDA requires, and states enforce, the following records for all applications of restricted use pesticides: name of applicator, date, field location or area, area treated, pesticide name and EPA registration number, total amount applied, and crop.

[5] Properly managed, flood irrigation can be managed in perennial systems to increase overall nursery productivity, without causing erosion (in or below the field) and to maintain good litter distribution (where applicable in a container nursery setting).

[6] Several states and provinces in the United States and Canada as well as Australia, The United Kingdom and others have published Best Management Practices (BMP's) standards for container nursery production.

[7] For nurseries with a choice of irrigation water sources, the selected source of irrigation water results in the least potential impact to in-stream flows of fish-bearing streams, both on nursery property and downstream from it. Fish losses must be avoided by installing fish screens on diversions in accordance with the State Department of Fish and Wildlife, or other similar guidance requirements specific to the Nursery's geographic location

[8] Scheduling relates to when to irrigate, timing relates to irrigation duration.

[9] Fertilizers applied as a dry granular formulation or injected directly into the pot through a micro-irrigation or drip irrigation system are not considered to be broadcast.

[10] For more information see:
http://www.climatefriendlynurseries.org/resources/best_management_practices_for_climate_friendly_nurseries.pdf

# IV-B. Evaluation Tool for Plant Production: Field Production

☐ N/A: This nursery has NO field-based plant production areas.

Name of Operation:

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Date of Inspection:

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Site Inspector:

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## Instructions for Use

1. Each standard area is scored according to Food Alliance evaluation criteria. Points are given for performance of each evaluation criteria as measured against the indicators in Levels 1 through 4. Points are only earned for the highest Level achieved.

2. Scoring partial points is allowed. Example: Half of the operation is in a four-year crop rotation, a Level 3 practice. You may score 2.5 points, or half the increase between Level 2 and Level 3, as a result.

3. No points are earned for a criterion that is not applicable (N/A) to the operation or region. These points are subtracted from the total as explained on the score sheet. This ensures all operations are scored fairly, based on the actual facilities present and practices in use. A full explanation for any N/A is required.

4. For producer/managers reviewing this evaluation tool: This is only a guideline for your use and does not guarantee acceptance of your application.

5. Inspectors should make notes on each criterion describing how they arrived at decisions, <u>including means used to verify all specific producer/manager claims</u>. These notes provide important background, which will be carefully considered in the final certification decision. Please make note of any criteria or indicators that were not applicable and the reason. Also include any Best Management Practices (BMPs) implemented by the producer/manager that are not listed in this inspection tool. Please be sure to consult the endnotes provided, as they provide guidelines for inspection criteria.

6. Inspectors may request records or other materials to document any claims made by producer/manager.

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## Integrated pest, disease and weed management, and pesticide risk reduction

NOTE: we use 'pest' in its inclusive sense to refer to all insects, mites, nematodes, pathogens and weeds that are injurious to crop yield and quality

### Continuing education for IPM

**Level 1. No continuing education occurs. Nursery manager exhibits little or no knowledge of IPM strategies and tactics.**

**Level 2. Crop-specific publications are purchased or accessed by web site to aid in management decisions. Manager demonstrates knowledge of prevention, avoidance and biologically based IPM tactics, as well as the risks associated with IPM.**

**Level 3. As per Level 2, a manager is a licensed private applicator, and meets all continuing education requirements for licensed private applicators. Manager consults as needed crop advisors, extension agents, pest control consultants and/or other agricultural specialists, as well as independent technical information. Manager attends education seminars on the following subject matters, and can communicate plans, practices and mitigation measures (check all that apply):**

- ☐ Biological pest control
- ☐ Non-pesticide controls such as horticultural oils
- ☐ Low risk pesticides
- ☐ Variety selection
- ☐ Pesticide application safety
- ☐ Techniques to reduce amount of pesticides applied
- ☐ Pest and disease management
- ☐ Other:

**Level 4. As per Level 3, a manager participates (or has participated in the last 5 years) in on-site testing of pesticide reduction strategies to evaluate their usefulness. Four or more of the following apply (check all that apply):**

- ☐ Ultra Low Volume (ULV) application equipment
- ☐ Pulse, fog or electrostatic application equipment
- ☐ Sticky traps
- ☐ Alternative weed controls (cocoa disks, geotextile disks, mulches, etc.)
- ☐ Light attractants
- ☐ Pheromone mating disrupters
- ☐ Propane burners for weed control in non-crop areas (i.e. bed perimeters, floors of structures, walkways, etc.)
- ☐ Summer heat sanitation of structures
- ☐ Biological pest controls

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## IPM planning [1]

**Level 1. New plantings are established without regard to environmental impact. Planning to prevent pests is rare. For ongoing pest control, curative measures are emphasized rather than preventive, i.e. herbicides are applied to the same weeds year after year in more or less the same place.**

**Level 2. Crop losses to pests are reduced by the planned use of preventive measures. Managers have a written nursery plant protection plan detailing the following provisions, <u>or</u> can communicate the methods they use for: monitoring pests and their phenology and weather conditions. Manager can identify pest management decisions based on this monitoring, including estimation of action thresholds. <u>At least three</u> of the following indicators of IPM practices are evident (check <u>all that apply</u>):**

- ☐ Pest and disease resistant varieties are used.
- ☐ Field scouting is practiced by a certified IPM practitioner.
- ☐ Crop rotation is practiced.
- ☐ Site selection is a criterion for crop establishment.
- ☐ Canopy humidity management (plant density, irrigation, raised beds) is practiced.
- ☐ Field insect/disease/weed population sampling informs pest management.
- ☐ Field sanitation is practiced as a preventative measure.
- ☐ Insect/disease/weed phenology/degree day modeling or other management tool informs pest management decisions.
- ☐ Trap crops are used for capturing harmful insects or as harbors for beneficial insects.
- ☐ Other:

**Level 3. As per Level 2, and <u>a total of four or more</u> from Level 2 apply (check <u>all that apply</u>). Manager can explain how IPM plan considers pest status and impacts, and how IPM plan employs prevention, avoidance and biologically based tactics in the context of clearly defined production goals. Manager can explain how IPM plan reduces impacts on beneficial and other natural resources in the context of clearly defined protection goals.**

**Level 4. As per Level 3, and <u>a total of five or more</u> from Level 2 apply (check <u>all that apply</u>). Manger can show that pest risks are exhibiting a downward trend.**

SCORE:

VERIFICATION METHODS/NOTES:

## Weather monitoring

**Level 1. Weather is not monitored.**

**Level 2. Important weather parameters are monitored on site, or a site-specific weather service is employed. Pesticides are not applied when weather conditions are not appropriate (e.g. wind or precipitation episodes are expected, or during adiabatic barometric pressure conditions.).**

**Level 3. As per Level 2, and varieties are selected to avoid weather-related diseases and disorders common to the location. Note: Provide notation when varieties are fixed.**

**Level 4. As per Level 3, and weather data is used to schedule pesticide applications for weather-dependent pests (phenology or degree-day models), irrigation, etc.**

SCORE:

VERIFICATION METHODS/NOTES:

## Crop monitoring/field scouting

**Level 1. Crops/fields are not monitored.**

**Level 2. Production records are maintained including inputs (e.g. chemicals, fertilizers, cover crops, irrigation, etc.), yields, and quality. Nursery sets action-thresholds to determine at what point treatment is necessary. Post-application evaluations are used to determine whether the treatment was effective, and what else needs to be done.**

**Level 3. As per Level 2, and crops/fields are regularly scouted (weekly, or some other schedule sensible for the area) or sampled for insects, diseases, weeds and disorders. There is evidence that threshold monitoring is an important part of the pest management process. <u>At least two</u> of the following indicators of monitoring/scouting is evident (check <u>all that apply</u>):**

- ☐ Pheromone traps
- ☐ Sticky traps
- ☐ Sweep nets
- ☐ Hand lenses/binoculars
- ☐ Flags marking field sampling locations
- ☐ Scouting records or notes
- ☐ Other:

**Level 4. <u>A total of three or more</u> from Level 3 apply, and scouting records/crop-monitoring records are collected and maintained. These records are reviewed and used to inform and improve pest management strategies and/or scouting methods in subsequent seasons. Software may be used to do comparisons and predictive modeling.**

SCORE:

VERIFICATION METHODS/NOTES:

## Lowest effective application rates/reducing application rates

**Level 1. Pesticide application rates are selected according to manufacturer's label.**

**Level 2. Reduced dosage strategies, such as spot spraying or alternate row spraying, are employed when the target pest does not require complete coverage.**

**Level 3. Applications are chosen based on <u>four or more</u> of the following circumstance(s). Check <u>all that apply</u>:**

- ☐ To match density and severity of the pest (insect, disease, weed) problem
- ☐ To preserve beneficial insects and soil organisms
- ☐ When using concentrate (low-volume) applications
- ☐ To account for the density of plantings
- ☐ To account for the size of plants
- ☐ Border sprays
- ☐ Based on tree-row volume (canopy cover, tree size)
- ☐ Number of applications made
- ☐ Frequency of applications
- ☐ Using novel spray technology
- ☐ Spot applications are made (i.e. for weeds).
- ☐ Steam sterilization is used when possible and appropriate.
- ☐ Other:

**Level 4. As per Level 3, and, where organic pesticides are available and appropriate, synthetic pesticides are not used. All pesticide (synthetic and organic) toxicity rankings are maintained with pesticide records and are tabulated annually to indicate progress in reducing overall use of high toxicity pesticides.**

SCORE:

VERIFICATION METHODS/NOTES:

## Pesticide selection, justification and resistance management

**Level 1. <u>All</u> of the following apply:**

- ☐ Only pesticides registered in the state as approved for target pests and crop are used.
- ☐ Pesticide mixtures prohibited by the label are not used.

**Level 2. As per Level 1, and for applications made using equipment covering larger areas, e.g. boom applications, pesticide selections and recommendations are made by licensed applicators and/or licensed consultants. (N/A for spot applications of non-RU pesticides)**

<u>AND</u>

**All pesticides used that are at risk of developing pest resistance are mixed or alternated with other pesticides of a different chemical class/mode of action, starting with the first year of use. Pesticide rotation is documented.**

**Level 3. As per Level 2, and the timing of applications and selection of pesticide materials correspond with scouting records or monitoring.**

**Level 4. When a control measure is deemed necessary or required by quarantine, every effort is made to use beneficial organisms, cultural controls and/or reduced toxicity pesticides (labeled "Caution").**

SCORE:

VERIFICATION METHODS/NOTES:

## Pesticide record keeping [2]

**Level 1. All legal requirements for pesticide record keeping are met.**[3]

**Level 2. As per Level 1, and pesticide records include <u>at least two</u> of the following additional pieces of information (check <u>all that apply</u>):**

- ☐ Crop growth stage
- ☐ Disease/pest growth stage
- ☐ Purpose of the pesticide treatment, i.e. target pest
- ☐ Threshold used to guide pesticide treatment
- ☐ Current weather data, e.g. weather conditions on day of application
- ☐ Accumulated weather data, e.g. growing degree days to determine pest outbreaks
- ☐ Effectiveness of pesticide treatment
- ☐ Calibration records

**If commercial companies apply pesticides on this nursery operation, those records are requested and maintained on site.**

**Level 3. As per Level 2, and pesticide records include <u>a total of</u> <u>three or more</u> pieces of information from Level 2. Pesticide records are kept for longer than two years. Manager can relate how records are used year-to-year to examine trends and aid management decisions.**

**Level 4. As per Level 3, and pesticide records include <u>a total of five or more</u> pieces of information listed in Level 2. Nursery grower can relate which pesticides are no longer used on the nursery (and why), as well as newer pesticides that are being used/tried.**

SCORE:

VERIFICATION METHODS/NOTES:

## Hazardous material storage

**Level 1. Storage facilities for hazardous materials (crop and livestock pesticides, fertilizers, fuel, lubricants) meet legal requirements (where applicable). Hazardous materials are stored in original, clearly labeled containers.**

**Level 2. Storage is at least 150 ft. away from wells and 200 ft. away from surface water or sources of flame. <u>Four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Empty hazardous material containers are triple-rinsed before return to supplier, disposal in an approved recycling program or licensed landfill.
- ☐ Tank rinsate is sprayed out on labeled crops at labeled rate or less.
- ☐ Storage size and organization is adequate to separate flammables from other materials.
- ☐ Pesticides are organized by insecticides, fungicides, herbicides, fertilizers, etc.
- ☐ Containers are organized to prevent spillage when storing/removing materials.
- ☐ Non-hazardous materials (e.g., seed, livestock feeds) are kept away from hazardous materials.
- ☐ Storage area is clearly marked on the outside with warning signs.
- ☐ Flammables are kept out of direct sunlight.
- ☐ Dry materials are stored above liquids.
- ☐ Storage area is locked, and lock allows free exit from within when locked.
- ☐ Other (please specify):

**Level 3. As per Level 2, and a current written inventory is maintained and accessible in the event of an emergency. An emergency plan is posted, directing people what to do in case of an emergency. <u>Three or more</u> of the following apply:**

- ☐ Storage area has a sealed floor.
- ☐ Storage area is well ventilated (no strong chemical smell).
- ☐ Inventory is managed on a first-in, first-out basis.
- ☐ Operation has a written internal audit process for dealing storage and safety issues associated with hazardous materials.
- ☐ Other (please specify):

**Level 4. Hazardous wastes are limited due to success in eliminating use of pesticides labeled "Danger" or "Warning" <u>OR</u>, as per Level 3 and storage area is "state of the art" and <u>all</u> of the following apply:**

- ☐ Storage area is located in a separate facility or building.
- ☐ The storage area is diked/curbed to contain spills.
- ☐ Capacity of the diking system is at least 125% of the largest quantity stored.
- ☐ Shelves are lipped and of an impermeable material.
- ☐ Road access is adequate for delivery and emergency vehicles.
- ☐ Storage area is locked, and lock allows free exit from within when locked.
- ☐ Valves on (large) storage tanks are locked when not in use where other security measures are not in place (if applicable).
- ☐ Storage is downwind (prevailing wind) from nearby housing, play or livestock areas.

SCORE:

VERIFICATION METHODS/NOTES:

## Application equipment calibration and pesticide drift management

**Level 1. Application equipment that <u>can be calibrated</u> (insecticide, fungicide, herbicide growth regulator, fertilizer application equipment) is calibrated less than once per year. Applications are made only with equipment designed for that use. Nozzles are checked and replaced when necessary.**

**Level 2. Check the following, as applicable:**

- ☐ Products are mixed according to label directions.
- ☐ Application equipment is calibrated at the start of each season, if designed to be calibrated.
- ☐ Drift reduction strategies are used.
- ☐ Applications are made only under weather conditions that minimize off-site movement (e.g., low wind speed, not raining).
- ☐ Commercial application companies are hired on this operation.

**Level 3. As per Level 2, and**

- ☐ Spot applications are used exclusively on this operation. All of the following apply:
    - ☐ Spot applications are limited to infested areas.
    - ☐ Pressure gauge on applicator is calibrated regularly.
    - ☐ Training is provided in proper use of equipment for efficient and effective application.

**OR <u>all</u> of the following apply:**

- ☐ The method of calibration is communicated to the inspector via written calibration records or verbal description. Note: Inspectors must feel confident that the method of calibration is adequate. Provide notation as to calibration methods used.
- ☐ When possible, calibration is adjusted to control amount applied and distribution of application (e.g., air blast sprayer nozzle distribution matches plant canopy size and shape).
- ☐ Buffer areas are established around fields to help reduce drift.
- ☐ Other (please specify):

**Level 4. As per Level 3, and at least one of the following apply:**

- ☐ Application equipment is calibrated more than once per season or uses technology that continuously calibrates.
- ☐ Technology is employed to keep particle size above 150 microns, depending on the type of equipment and pesticide used.
- ☐ Water sensitive paper and spray droplet analysis software is used to avoid drift or over-application.
- ☐ Pesticide application equipment is selected and maintained for site-specific conditions (e.g., hooded sprayers for windy sites).
- ☐ Storage is downwind (prevailing wind) from housing, play or livestock areas.
- ☐ An emergency plan is posted, directing people what to do in case of an emergency.

SCORE:

VERIFICATION METHODS/NOTES:

### Scorecard for integrated pest, disease and weed management

| | SCORE/LEVEL |
|---|---|
| Continuing education for IPM | |
| IPM planning | |
| Weather monitoring | |
| Crop monitoring/field scouting | |
| Lowest effective application rates/reducing application rates | |
| Pesticide selection, justification and resistance management | |
| Pesticide record keeping | |
| Hazardous material storage | |
| Application equipment calibration and pesticide drift management | |
| | |
| (1) TOTAL POINTS EARNED | |
| | |
| Total Points Available | 36 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Soil and water conservation

### Continuing education for soil and water conservation

**Level 1. Manager demonstrates little or no knowledge about soil and water conservation. Current nursery operation reflects this knowledge gap, with no special planning or action considered to prevent soil erosion, conserve water, and protect water quality.**

**Level 2. Manager relies on general interest Ag publications (newspapers and general newsletters, etc.) to learn about soil and water conservation. In the course of the discussion, manager demonstrates a basic understanding of the issue area, e.g. water source, water quality, irrigation efficiency issues, irrigation equipment maintenance, etc.**

**Level 3. Manager uses technical, subject matter-specific information sources to aid in soil and water conservation. Where relevant national or state-wide best management practices (BMP's)[5] exist, manager can describe which BMP's are applicable to their operation and how they have been incorporated. Manager can discuss and communicate technical knowledge of the following (check <u>all that apply</u>):**

- ☐ Erosion prevention strategies
- ☐ Nutrient budgets
- ☐ Innovative irrigation systems and management
- ☐ Soil quality monitoring
- ☐ Precision application of plant nutrients
- ☐ Incorporation of crop residue or compost
- ☐ Cover cropping
- ☐ Conservation tillage
- ☐ Riparian habitat and buffer zones around surface waters
- ☐ Carbon sequestration in agricultural soils
- ☐ Building and maintaining soil organic matter and soil carbon levels
- ☐ Soil building crop rotations
- ☐ Soil ecology
- ☐ Soil biota
- ☐ Water conservation practices (list practices used)
- ☐ Other (please specify):

**Level 4. As per Level 3, and <u>a total of six or more</u> from Level 3 apply (check <u>all that apply</u>). Manager documents performance outcomes of on-site soil and water conservation practices. Manager participates (or has participated in the last 5 years) in on-site or laboratory testing of soil and/or water conservation strategies to evaluate their usefulness, or participates in a local or regional water quality council or organization. Manager also documents performance of on-site soil and water conservation practices.**

SCORE:

VERIFICATION METHODS/NOTES:

Stream channel protection and restoration (applies where nursery operation has management control over streams on or adjacent to nursery-managed property)

☐ N/A: There are no streams on or adjacent to nursery-managed property, <u>or</u> nursery has no management control over streams on or adjacent to nursery-managed property.

**Level 1. Channel manipulation -- such as filling, excavating and straightening – is done without consideration for stream channel morphology and function. Manager cannot describe impacts to stream functions, stream temperature and/or water quality resulting from on-site practices. Check <u>all that apply</u>:**

- ☐ Large and small woody debris are routinely removed from stream channels regardless of debris contribution to hydrologic or geomorphic function.
- ☐ Diversion structures present barriers for fish and wildlife.
- ☐ Floodplains and/or wetland areas appear in a degraded state (e.g., eroded areas of unusually sparse vegetation, inappropriately hummocky, etc.).
- ☐ Other (please specify):

**Level 2. Manager can describe appropriate management techniques for restoration and protection of stream channels and in-stream habitat. Manager can demonstrate that at least three management techniques are being implemented to protect and/or restore in-stream channels and in-stream habitat. List management techniques:**

**Level 3. As per Level 2, and manager has a basic written plan for, or can describe how, nursery operations protect, and, where possible, enhance stream channel morphology and function. <u>Three or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Existing levees have been removed or are set back to avoid encroaching on the floodplain.
- ☐ Unnatural in-stream barriers to fish and wildlife have been removed, or plans are in place to remove them.
- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.
- ☐ Other (please specify):

**Level 4. As per Level 3, and active steps are being taken to restore stream channels to their natural condition. Channel manipulation, except for habitat restoration, is avoided to the greatest extent operationally feasible. A plan is in place to remove degraded wetlands from production and to restore natural functions to the greatest extent operationally feasible. <u>A total of five or more</u> from Level 3 apply (check <u>all that apply</u>).**

SCORE:

VERIFICATION METHODS/NOTES:

Buffer strips around waterways (natural and constructed)

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**Level 1. Production areas are established within 25 feet of the water's edge. Management alongside waterways allows the following to occur less than 25 feet from water's edge. Check <u>all that apply</u>:**

- ☐ There is evidence of sediment or nursery-generated effluent reaching waterways.
- ☐ Riparian and/or wetland areas appear in a degraded state (e.g., eroded areas of unusually sparse vegetation, hummocky, etc.).

**Level 2. Production areas are more than 25 feet from water's edge. Production areas alongside waterways have been managed to achieve the following (all of the following apply):**

- ☐ Buffers are established between production areas and water's edge.
- ☐ Sedimentation appears to be contained by the buffer.
- ☐ Banks seem stable with no evidence of erosion and low risk of massive bank failure.

**Level 3. As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off. Riparian buffer zones are sufficiently vegetated to reduce the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters. Check all that apply:**

- ☐ Grass filter strips have been established and maintained in fields above waterway.
- ☐ Riparian buffer areas are an average of 50-feet or more in width.
- ☐ The use of buffers and upland erosion-control measures has resulted in the prevention of the movement of sediment, nutrients, organics and pesticides beyond the edge of the field.
- ☐ Where water temperatures are an issue, buffer vegetation is managed to provide shade.
- ☐ Where appropriate, buffer vegetation provides wood recruitment, leaf litter supply, stream bank stability and filtration of sediment to maintain aquatic habitat.
- ☐ Other (please specify):

**Level 4. As per Level 3, and all of the following apply (where applicable):**

- ☐ Riparian zones are no less than 50 feet wide in any location.
- ☐ Riparian zones and buffer areas are adequately vegetated with a diverse mix of species containing greater than 50 percent of mixed multi-aged, native and non-invasive non-native species.
- ☐ Newly established ground cover plantings include a diverse mix of adapted grasses and forbs native to the site.
- ☐ Ecologically appropriate trees and shrubs provide a second-story of cover and habitat, especially along stretches of streams or rivers in need of bank stabilization and shade. The use of native species is recommended when available.
- ☐ Wetlands not currently in production are protected by a minimum 50 foot uncultivated buffer. If 50 foot buffers are not operationally feasible, buffer must be provided to the greatest extent operationally feasible.
- ☐ Once established, practices are managed appropriately and maintained to ensure effectiveness, e.g. yearly maintenance to ensure that sheet flow is maintained across buffer .

SCORE:

VERIFICATION METHODS/NOTES:

## Irrigation systems[4]

**Level 1. An irrigation system is used that appears inefficient and may allow water, nutrients, pesticides and/or soil particles to leave the field.**

**Level 2. An irrigation system is used that incorporates <u>three or more</u> of the following (check <u>all that apply</u>):**

- ☐ Irrigation system was designed by a professional.
- ☐ Fields with furrow irrigation have been laser leveled.
- ☐ Fields with furrow irrigation use gated head pipe.
- ☐ Center pivot systems use high efficiency drop nozzles.
- ☐ Flood irrigation used only on perennial fields.
- ☐ Sprinkler systems make use of low pressure, micro-sprinklers.
- ☐ Trickle tape is used when appropriate for the crop.
- ☐ Soil moisture sensors are used to monitor moisture.
- ☐ Variable frequency drive pumps are used.
- ☐ Crop modeling is used to predict plant demand.
- ☐ A weather data system is used to estimate crop water use.
- ☐ Other (please specify):

**Level 3. <u>A total of five or more</u> from Level 2 apply (check <u>all that apply</u>). If relevant national or state-wide best management practices (BMP's) exist, nursery can describe which BMP's are appropriate to their operation and how they have been incorporated.**

**Level 4. As per Level 3, and improvements in water use efficiency for the operation are documented. <u>A total of seven or more</u> from Level 2 apply (check <u>all that apply</u>).**

SCORE:

VERIFICATION METHODS/NOTES:

Irrigation water conservation[5]

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**Level 1. Water use or need is not monitored or planned.**

**Level 2. <u>Either</u>**

- ☐ water use is monitored and data is recorded

**<u>OR</u>**

- ☐ annual planning for available water is a priority (as applies to regions with seasonal water availability).

**Level 3. As per Level 2, and nursery monitors the performance of their irrigation system equipment to verify that motors, pumps, and delivery systems are performing well and according to specifications. Updates and repairs are implemented as appropriate. If relevant national or state-wide best management practices (BMP's) exist, nursery can describe which BMP's are meaningful to their operation and how they have been incorporated. <u>Five or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Irrigation activities are initiated based on soil moisture testing.
- ☐ Water use data is analyzed and interpreted for managers and staff for the purpose of improving water conservation techniques.

- ☐ Irrigation practices consider soil type and infiltration rates.
- ☐ Weather information is factored into the timing of irrigation activities.
- ☐ Crop demand or consumptive use is factored into irrigation activities.
- ☐ Drought resistant varieties are selected, where practicable.
- ☐ Soil moisture is conserved through reduced tillage and soil organic matter conservation.
- ☐ Crops are produced without irrigation.
- ☐ Mulches and ground covers are used.
- ☐ Manures (animal and/or green) are incorporated into fields and improvement in soil organic matter is detected.
- ☐ Rainfall and/or irrigation water is collected and recycled for other uses.
- ☐ Manager participates in a local or regional body responsible for water issues such as over-allocation, groundwater recharge, stream flow, etc.
- ☐ Other (please specify):

**If any irrigation source is a salmon-bearing or potentially salmon-bearing stream, irrigation withdrawals should not significantly limit habitat conditions or harm fish. If it is reasonably possible that fish may be harmed by irrigation withdrawals, the grower should implement <u>one or more</u> of the following to the greatest extent operationally feasible:**

- ☐ Nursery attempts to reduce the amount of area planted with high water demand crops.
- ☐ Nursery seeks alternative sources of water that do not limit habitat quality, particularly when required by fish during critical periods of their life cycle.
- ☐ Nursery considers leasing excess water rights to Oregon Water Trust, Washington Water Trust, the Columbia Basin Water Transactions Program, or similar program.
- ☐ Nursery uses non-potable water (captured rainwater, recycled graywater, reclaimed/treated wastewater, recycled/treated irrigation tailwater, etc.) for 70% of total irrigation volume.

**Level 4. A combined total of <u>eight or more</u> items from Levels 3 and 4 apply. Check <u>all that apply</u>.**

- ☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.
- ☐ If in-stream work is done when there is water in the stream, water is diverted around the construction area to limit impacts to habitat. Turbidity curtains and other in-stream sediment control and containment measures should be used to prevent sediment and construction debris from entering the waterway.
- ☐ Nursery water is conserved by scheduling timing of water application in specific consideration of crop requirements, daily rainfall amounts, soil types and known evapotranspiration rates for the area. Soil moisture is monitored to provide timely information about soil moisture levels relative to crop needs to improve irrigation efficiency.
- ☐ Excessive water application is unacceptable. Irrigation withdrawal volumes and rates are measured and recorded, with the intent of showing a reduction in water use over time or demonstrating that no further efficiencies are feasible.

SCORE:

VERIFICATION METHODS/NOTES:

Nutrient management

**Level 1. There is no nutrient management plan in place. Neither soils nor plant tissues are monitored for nutrient levels.**

**Level 2. Fertilizer applications are performed using <u>four or more</u> of the following nutrient management practices (check <u>all that apply</u>):**

- ☐ Plant tissue testing is completed at regular intervals appropriate to the crop.
- ☐ Soil pH is monitored and adjusted to ensure proper nutrient availability and uptake.
- ☐ Soil testing is completed at regular intervals. Samples are taken at or near the same time of year so that results can be used for comparison.
- ☐ Soil and/or plant tissue tests are used to determine fertilizer application rates.
- ☐ Fertilizer applications comply with University or Extension crop and region-specific recommendations for rates and timing to minimize leaching and runoff while meeting plant needs.
- ☐ Manager considers soil type, previous crops, expected yields, and manures/composts in fertilizer applications and accounts for these in nutrient budgets.
- ☐ Split and/or banded applications are used.
- ☐ Organic fertilizers are used (e.g. animal manures, green manures) to meet but not exceed plant needs.
- ☐ Mulching is used to reduce nutrient runoff and/or leaching.
- ☐ Nursery can describe how their operation recycles nutrients, and how their operation balances nutrient inputs with nutrient use.
- ☐ Other (please specify):

**Level 3. <u>A total of six or more from</u> Level 2 apply (check <u>all that apply</u>). If relevant national or state-wide best management practices (BMP's) exist, nursery can describe which BMP's are appropriate for their operation and how they have been incorporated. A nutrient management plan is in place that includes <u>two or more</u> of the following (check <u>all that apply</u>):**

- ☐ Procedures for advanced nutrient application techniques designed to reduce waste (e.g., fertigating through drip lines, banding, dibbling rather than broadcasting)
- ☐ Precision agricultural-guidance systems are installed
- ☐ Consideration of fertilizer type for both plant nutrient needs and environmental impact (broadly defined)
- ☐ A procedure for recording observations on important indicators of success, like impacts on surface water on-site (e.g., algal blooms, excessive vegetation), etc.
- ☐ One of the following three nutrient requirements is met exclusively with organic, noncommercial sources: nitrogen (N), phosphorous (P), or potassium (K), to meet but not exceed plant needs

**Level 4. <u>A total of nine or more</u> from Level 2 apply. Additionally, as per Level 3, and <u>a total of three or more</u> from Level 3 apply. The nutrient management plan is written. When available and as appropriate, the nutrient management plan is completed with the assistance of a professional. Important indicators of success are evident (check <u>all that apply</u>):**

- ☐ Crop rotations are planned to maximize conservation and recycling of nutrients.
- ☐ The majority of nutrients are provided by on-site sources.

- ☐ Use of precision fertilizer applications based on multiple samplings per field (with varying application rates per field or block).
- ☐ Advanced soil quality indicators related to nutrient retention and uptake (e.g., organic matter content, soil aggregation) are monitored and improvements documented.
- ☐ Nursery participates in education, cost-share and/or demonstration programs related to nutrient management planning.
- ☐ Nursery manger maintains records to demonstrate continuous improvement in nutrient management.
- ☐ Nursery uses no peat in any planting media, including for propagation of liners.
- ☐ Nursery reuses all uninfected organic matter through composting and recycling of 100% of all vegetative trimmings or offering them for sale to the public.
- ☐ Nursery uses floating islands of aquatic and other plants to remediate contaminants.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

Soil organic matter management

**Level 1. Soil organic matter is not monitored. Inorganic fertilizers supply the majority of plant nutrients. Fertilizers may be applied without regard to soil testing or crop monitoring.**

**Level 2. Soil organic matter is considered a factor in management. Two or more of the following apply (check all that apply):**

- ☐ No-till, direct-seed, strip-till, or other restricted tillage practices are used.
- ☐ Seasonal cover crops that produce high volumes of organic material or root mass are used.
- ☐ Conservation cover (permanent vegetative cover) is planted between rows in orchards, vineyards, and other perennial row crops (e.g. scion orchards) is used.
- ☐ Mulches (natural or synthetic) are applied.
- ☐ Regular additions of organic matter (e.g. green manures, composts) are applied.
- ☐ Strip cropping with annuals and perennials is used.
- ☐ Least oxidizing inorganic fertilizers (e.g. urea versus anhydrous ammonia) are used.
- ☐ Perennial crops (e.g. scion orchards) are inter-rowed with cover crops.
- ☐ Fertilizers are applied using precision applications, banding applications and/or split applications.
- ☐ Precision agricultural-guidance systems are used.
- ☐ Other (please specify):

**Level 3. Soil organic matter management is a priority. A total of four or more from Level 2 apply. One practice must be use of cover crops or restricted tillage practices. Changes in soil organic matter resulting from implemented practices are documented.**

**Level 4. As per Level 3, and nursery has eliminated use of synthetic fertilizers due to the successful implementation of soil quality and soil fertility-management activities. Soil tests must be taken**

**annually, and include organic matter content to score at this level. Nursery has developed and documented a plan for improvement on each individual field.**

SCORE:

VERIFICATION METHODS/NOTES:

Soil erosion prevention

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**Level 1. All applicable federal, state and local erosion-related legal requirements are met (if applicable, for e.g., buffer zones, management of highly erodible areas).**

**Level 2. As per Level 1, and soil erosion is monitored regularly.**

- ☐ If signs of erosion are present, check all that apply:
  - ☐ Soil deposits exist at field margins as evidence of erosion.
  - ☐ Channels and gullies are present
  - ☐ Erosion pedestals are present.
  - ☐ Wind scoured areas, blowouts or depositional areas are present.
  - ☐ Surface-crusted areas are visible.
  - ☐ Damage to seedlings from wind erosion is evident.
  - ☐ Bare soil and loss of soil from around plant roots is evident.
  - ☐ Other (please specify):
- ☐ If erosion is present or reported, the manager must employ two or more of the following (check all that apply):
  - ☐ Diversion ditches
  - ☐ Terracing
  - ☐ Contour plowing
  - ☐ Contour buffer strips
  - ☐ Vegetated buffer strips between rows
  - ☐ Vegetated buffer strips at the end of rows
  - ☐ Strip-cropping
  - ☐ Cross wind trap strips or herbaceous wind barriers for wind erosion control
  - ☐ Windbreaks/shelterbelts for wind erosion control
  - ☐ Sediment trap (sediment pond or other sediment trapping structure)
  - ☐ Other (please specify):

**Level 3. As per Level 2. Where erosion is present or reported, a total of four or more from Level 2 apply. Two or more of the following are integrated into the production system (check all that apply):**

- ☐ Mulches are used for weed suppression and moisture retention.
- ☐ Organic matter (e.g. manures, composts) is incorporated into soil.
- ☐ Perennial crops are integrated into non-production areas.
- ☐ Containment ponds are utilized and the water reused on site.
- ☐ Cover crops or inter-seeding are used between rows and/or in non-production areas.
- ☐ No-till, direct-seed, mulch-till, strip-till or other restricted tillage system is used.
- ☐ Crop residue is retained on field during critical erosion period.

- ☐ Mulches are used.
- ☐ Vegetated buffer are established between rows and at the end of rows.
- ☐ Perennial crops are integrated into the nursery as appropriate.
- ☐ Long-term crops, like alfalfa, are incorporated into the rotation.
- ☐ A ley crop is included in the rotation.
- ☐ Conservation crop rotation
- ☐ Other (please specify):

**Level 4. As per Level 3, and a total of <u>four or more</u> from Level 3 apply. Signs of erosion (see Level 2) are very minimal or absent. Practices are designed for each field and there is an evaluation of the effectiveness of implemented practices. <u>All</u> of the following apply, where appropriate:**

- ☐ To the greatest extent operationally feasible, nursery roads are stabilized with gravel, wood chips, or geotextile fabric or vegetative ground cover capable of withstanding nursery machinery.
- ☐ Nursery property is regularly inspected following storm events. Evidence of erosion or surface runoff during inspections are repaired within a reasonable timeframe, consistent with BMP's and the above standards.

SCORE:

VERIFICATION METHODS/NOTES:

Tillage selection practices and soil compaction prevention

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**Level 1. The possible soil-degrading effects of tillage are rarely considered on the nursery. Tillage operations are conducted with minimal concern for soil productivity and compaction.**

**Level 2. The nursery considers tillage as a tool to be used judiciously. A tillage system that conserves soil (lessens soil erosion and compaction) and/or improves soil health is used on the nursery. <u>Three or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Non-inversion tillage methods are selected that result in crop residue left on the soil surface during critical erosion periods (e.g. conservation tillage)
- ☐ Tillage is restricted to specific portions of fields (e.g. strip tillage).
- ☐ Tracked equipment rather than equipment with wheels are used to avoid destruction of the soil profile.
- ☐ Nursery activities that cause soil compaction are not performed when soils are wet.
- ☐ Nursery traffic is generally controlled (e.g. use of field borders, tractor paths and lanes within fields for machinery).
- ☐ Nursery vehicles are operated with improved load distributions.
- ☐ Precision agricultural-guidance systems are used.
- ☐ Cover crops are planted and properly managed to improve drainage and increase the tilth of the soil.
- ☐ Long-term crops, like alfalfa, are incorporated into the rotation.

- ☐ Manures or compost are added to soils on a regular basis (e.g. between rotations) to improve tilth.
- ☐ Conservation cover (permanent vegetative cover) is planted between rows in scion orchards, and other perennial row crops (e.g. display gardens).
- ☐ Other (please specify):

**Level 3. As per Level 2, and <u>a total of five or more</u> from Level 2 apply (check <u>all that apply</u>). Evidence of success is seen and/or documented through photography, monitoring records, etc. Check <u>all that apply</u>:**

- ☐ Nursery records show gradual increases in soil organic matter.
- ☐ Nursery uses equipment designed to reduce soil compaction.
- ☐ Monitoring records show a decrease in soil compaction.
- ☐ Evidence of erosion is minimal or not present.
- ☐ Soil quality indicators are all positive.
- ☐ Soil tilth appears good.
- ☐ Nursery deep plows to reduce hardpan and works the ground when soil moisture allows for the least amount of compaction.
- ☐ Other (please specify):

**Level 4. As per Level 3, and the manager selects production systems based on any of the following (check <u>all that apply</u>):**

- ☐ Nursery is in the process of converting, or has recently converted acreage to perennial crops as a means for reducing tillage and soil disturbance.
- ☐ The nursery is entirely in no-till, direct-seed, or other agricultural production system that uses crop rotations and other strategies to limit inputs.
- ☐ Nursery evaluates and documents improved efficiency of crop production resulting from adoption of conservation practices.
- ☐ Where drainage problems exist, nursery uses drain tiles at least 30 feet on-center.

SCORE:

VERIFICATION METHODS/NOTES:

### Scorecard for soil and water conservation

| | SCORE/LEVEL |
|---|---|
| Continuing education for soil and water conservation | |
| Stream channel protection and restoration | |
| Buffer strips around waterways | |
| Irrigation systems | |
| Irrigation water conservation | |
| Nutrient management | |
| Soil organic matter management | |
| Soil erosion prevention | |
| Tillage selection practices and soil compaction prevention | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 36 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Operational efficiencies

### Continuing education for operational efficiencies

**Level 1. Manager demonstrates little or no knowledge about recycling/reuse options, energy efficiency, low-impact packaging, or other means for achieving efficiencies and reducing negative social and environmental impacts of the nursery operation. Current nursery operation reflects this knowledge gap, with no special planning or actions considered to capture efficiencies and reduce negative social and environmental impacts of the nursery operation.**

**Level 2. Manager relies on general interest Ag publications (newspapers and general newsletters, etc.) to learn about operational efficiencies. In the course of the discussion, manager demonstrates a basic understanding of the issue area.**

**Level 3. Manager uses technical, subject matter-specific information sources to aid in increasing operational efficiencies. Manager can discuss these issues and communicates technical knowledge of the following specific operational efficiencies issues.**

**Level 4. As per Level 3, and manager participates (or has participated in the last 5 years) in either on-site testing of operational efficiencies strategies to evaluate their usefulness, or, participates in a local or regional water quality council or organization. Manager also documents performance of on-site operational efficiencies practices.**

SCORE:

VERIFICATION METHODS/NOTES:

Reuse and recycle

**Level 1. Nursery neither recycles nor reuses any waste or byproducts from the operation. Manager is not informed about the issue.**

**Level 2. Manager communicates some knowledge of recycling or reuse of waste or byproducts from the nursery operation. Nursery has a limited plan, or systematic method of recycling or reusing waste or byproducts from part of the nursery operation. Two or more of the following apply (check all that apply):**

- ☐ Manager communicates some knowledge of recycling or reuse of waste or byproducts from the nursery operation.
- ☐ Nursery has facilities available on site for recycling plastic, metal, glass and paper.
- ☐ Nursery recycles all paper products including office paper, refuse from lunch rooms, field trash, old catalogs, stationary, etc.
- ☐ Nursery reuses recycled shredded newsprint paper.
- ☐ Nursery recycles metals.
- ☐ Other (please specify):

**Level 3. Manager communicates detailed knowledge of some area of recycling or reuse of waste or byproducts from the nursery operation. Nursery has a detailed plan or systematic method of recycling or reusing waste or byproducts from part of the nursery operation. Where composting is practiced, manager can describe the composting methodology or has written plan for ensuring successful results. Six or more of the following apply (check all that apply):**

- ☐ Nursery composts, recycles and reuses some plant and/or yard debris.
- ☐ Nursery recycles and/or reuses some equipment oils.
- ☐ Nursery recycles and reuses some grain or hay straw after harvest.
- ☐ Nursery recycles and reuses some other local nursery waste or byproducts.
- ☐ Nursery uses sustainable soil amendments that do not include peat moss.
- ☐ Nursery uses renewable energy sources to meet 10% of electricity demands, or engages in at least a two-year contract for the purchase of 35% of electricity from renewable energy sources.
- ☐ Nursery recycles wood pallets.
- ☐ Nursery recycles some plastics (e.g. triple rinsed pesticide containers, poly from greenhouses, used pots, shade cloth, chip-bud and tying tape, grow tubes, tree labels, packaging, banding, etc.).
- ☐ Nursery recycles some cardboard products.
- ☐ Nursery recycles some tree-tying twine.
- ☐ Nursery uses some non-synthetic tying materials.
- ☐ Nursery reuses cedar shavings from cedar shingle industry.
- ☐ Nursery reuses sawdust from lumber industry.
- ☐ Nursery composts or sells some vegetative trimmings.
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of recycling or reuse of most of the waste or byproducts from all parts of the nursery operation. Manager has a detailed plan, or systematic method of recycling or reusing most of the waste or byproducts from all parts of the nursery operation. Where composting if practiced, manager has written plan for ensuring successful results. <u>Eight or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Nursery does not recycle or reuse any quarantined plant or yard debris.
- ☐ Nursery recycles and reuses equipment oils to the full extent possible.
- ☐ Nursery composts, recycles and reuses plant and/or yard debris fullest extent possible.
- ☐ Nursery recycles and reuses grain or hay straw after harvest fullest extent possible.
- ☐ Nursery recycles and reuses other local nursery waste or byproducts.
- ☐ Nursery uses sustainable soil amendments that do not include peat moss.
- ☐ Nursery is committed to using renewable energy sources to meet 10% of electricity demands or engages in at least a two-year contract for the purchase of 35% of electricity from renewable energy sources.
- ☐ Nursery recycles and/or reuses wood pallets.
- ☐ Nursery recycles all plastics including triple rinsed pesticide containers, poly from greenhouses, used pots, shade cloth, chip-bud and tying tape, grow tubes, tree labels, packaging, banding, etc fullest extent possible.
- ☐ Nursery recycles all cardboard products.
- ☐ Nursery recycles all tree-tying twine.
- ☐ Nursery uses only non-synthetic tying materials.
- ☐ Nursery reuses cedar shavings from cedar shingle industry.
- ☐ Nursery reuses sawdust from lumber industry.
- ☐ Nursery reuses or sells 100% of vegetative trimmings.
- ☐ Nursery conducts a waste audit to identify the weight or volume of on-going consumables and the reuse, recycling, or composting of at least 50% of the on-going consumables waste stream.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Energy efficiency

**Level 1. Manager neither employs nor considers energy efficiency in the nursery operation. Manager is not informed about the issue. Check <u>all that apply</u>:**

- ☐ Manager has no plan, or systematic method of auditing energy use in the nursery operation.
- ☐ Manager communicates no knowledge of energy efficiency in the nursery operation.
- ☐ Other (please specify):

**Level 2. Manager communicates some knowledge of energy efficiency in the nursery operation. Manager has a limited plan, or systematic method of energy efficiency auditing in the nursery operation.**

**Level 3. Manager communicates detailed knowledge of some area of energy efficiency in the nursery operation. Manager has a detailed plan, or systematic method of energy efficiency auditing in part of the nursery operation. <u>Four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Nursery demonstrates that the energy use during the three most recent years is at least 10% less than the average energy use over the previous ten years.
- ☐ Nursery uses high efficiency measures when operating its equipment.
- ☐ Nursery uses occupancy sensors, fluorescent, metal halide, LED or other energy efficient lighting, and audits their use.
- ☐ Nursery uses variable frequency drive pumps and controls, and variable speed pumps for irrigation, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses drip irrigation and/or high efficiency sprinklers and nozzles for irrigation, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery captures and reuses rainwater runoff from roofs and parking lots.
- ☐ Nursery uses high efficiency heating, air conditioning and ventilation systems in its offices, greenhouses and warehouses, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses high efficiency insulation in its offices, greenhouses and warehouses including thermal curtains where appropriate.
- ☐ Nursery partners with an energy efficiency alliance or similar organization to prioritize nursery efforts for resource management.
- ☐ The Nursery implements best management practices for compliance with the Climate Friendly Nurseries Project (CFNP).[6]
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of energy efficiency auditing in all parts of the nursery operation. Manager has a detailed plan, or systematic method of energy efficiency auditing in all parts of the nursery operation, with a specific timeline for implementation. <u>Five or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Nursery demonstrates that the energy use during the three most recent years is at least 25% less than the average energy use over the previous ten years.
- ☐ Nursery uses occupancy sensors, fluorescent, metal halide, LED or other energy efficient lighting and audits their use.
- ☐ Nursery uses variable frequency drive pumps and controls and variable speed pumps for irrigation, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses drip irrigation and/or high efficiency sprinklers and nozzles for irrigation, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery captures and reuses rainwater runoff from roofs and parking lots.
- ☐ Nursery captures and reuses irrigation water runoff from production areas.
- ☐ Nursery uses high efficiency heating, air conditioning and ventilation systems in its offices, greenhouses and warehouses, and manages those systems to reduce energy use and take advantage of systematic efficiencies.
- ☐ Nursery uses high efficiency insulation in its offices, greenhouses and warehouses including thermal curtains where appropriate.
- ☐ Nursery partners with an energy efficiency alliance or similar organization to prioritize nursery efforts for resource management.

- ☐ The Nursery implements best management practices for compliance with the Climate Friendly Nurseries Project (CFNP).
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

Low-impact packaging

**Level 1. Manager neither employs nor considers low-impact packaging in the nursery operation. Manager is not informed about the issue. Check all that apply:**

- ☐ Manager has no plan, or systematic method of employing the use of low-impact packaging in the nursery operation.
- ☐ Manager communicates no knowledge of the use of low-impact packaging in the nursery operation.
- ☐ Other (please specify):

**Level 2. Manager communicates some knowledge of the use of low-impact packaging in the nursery operation. All of the following apply:**

- ☐ Manager has a limited plan, or systematic method of using low-impact packaging in the nursery operation.
- ☐ Manager communicates some knowledge of how to employ or use low-impact packaging in the nursery operation.
- ☐ Other (please specify):

**Level 3. Manager communicates detailed knowledge of some area of use of low-impact packaging in the nursery operation. Two or more of the following apply (check all that apply):**

- ☐ Manager has a detailed plan for using low-impact packaging in part of the nursery operation, and can demonstrate implementation of that plan.
- ☐ Nursery sources materials from suppliers that use low-impact packaging.
- ☐ Nursery sources materials in bulk or otherwise to reduce packaging of sourced materials.
- ☐ Manager has a systematic method for using low-impact packaging in part of the nursery operation, and can demonstrate implementation of that method.
- ☐ Nursery demonstrates that the use of low-impact packaging during the three most recent years is at least 25% more than the use of conventional packaging over the previous ten years.
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of all area of use of low-impact packaging in the nursery operation. Four or more of the following apply (check all that apply):**

- ☐ Manager communicates detailed knowledge of using low-impact packaging in all parts of the nursery operation.
- ☐ Manager has a detailed plan for using low-impact packaging in all parts of the nursery operation and can demonstrate implementation of that plan.

- ☐ Manager has a systematic method of using low-impact packaging in all parts of the nursery operation and can demonstrate implementation of that method.
- ☐ Nursery demonstrates their willingness to reduce the amount of conventionally packaged products used in their daily operation.
- ☐ Nursery demonstrates a reliable method of monitoring their use of conventionally packaged products.
- ☐ Nursery demonstrates a method to minimize waste streams while maximizing the reuse and recycling of materials in their daily operation.
- ☐ Nursery sources materials from suppliers that use low-impact packaging.
- ☐ Nursery sources materials in bulk or otherwise to reduce packaging of sourced materials.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Scorecard for operational efficiencies

| | SCORE/LEVEL |
|---|---|
| Continuing education for reuse/recycling materials | |
| Reuse and recycle | |
| Energy efficiency | |
| Low-impact packaging | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 16 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Fixed Criteria

### No GMO seeds or plant materials are used

**Check the following as applicable:**

- ☐ No GMO seeds or plant materials are produced on the nursery.
- ☐ GMO seeds and/or plant materials are produced on the nursery.

**Check the verification method used:**

- ☐ Records show the plant varieties grown. All are non-GMO varieties.
- ☐ There are currently no GMO varieties for the crops grown.
- ☐ Other (please specify):

NOTES:

### No prohibited pesticides used

**Food Alliance Prohibited Pesticide List**

The Food Alliance Prohibited Pesticide List (PPL) is based on the WHO Recommended Classification of Pesticides by Hazard (2009). The PPL consists of materials classified as extremely hazardous or highly hazardous on the WHO list that are registered for use by the USEPA. Exceptions will allowed if the use of a material on the PPL is required by law or by required for export. The PPL is in Appendix 1, at the end of the evaluation materials.

**Check the following as applicable:**

- ☐ Pesticide records indicate that none of the pesticides listed in the Reducing Pesticide Usage section certification criteria are used on this nursery operation.
- ☐ Other (please specify):

**Check the verification method used:**

- ☐ Visual inspection of hazardous material storage confirms no presence of prohibited pesticides.
- ☐ Other (please specify):

NOTES:

### Continual Improvement

**Check the following for renewing applications only (as applicable):**

- ☐ 1-year improvement goal from previous application met.
- ☐ 3-year improvement goal from previous application met.
- ☐ 5-year improvement goal from previous application met.

# Appendix 1: Food Alliance Prohibited Pesticide List

Class Ia and Ib pesticides registered for use by the USEPA (See: The WHO recommended classification of pesticides by hazard and guidelines to classification: 2009.) ©Food Alliance 2011

| EPA Reg No. | Product Name | WHO Mixture Classification | Chemical Name |
|---|---|---|---|
| 5481-448 | AMVAC BIDRIN 8 WATER MISCIBLE INSECTICIDE | Ib | Dicrotophos |
| 10163-95 | AZINPHOS METHYL TECHNICAL | Ib | Azinphos-methyl |
| 66330-233 | AZINPHOSMETHYL 50W | Ib | Azinphos-methyl |
| 5481-9032 | AZTEC 3.78% GRANULAR INSECTICIDE | Ib | Phostebupirim |
| 5481-9028 | AZTEC 4.67% GRANULAR | Ib | Phostebupirim |
| 5481-552 | BIDRIN XP | Ib | Dicrotophos |
| 100-987 | BRODIFACOUM TECHNICAL | Ia | Brodifacoum |
| 270-371 | BROMADIOLONE 2.5% CONCENTRATE | Ib | Bromadiolone |
| 270-374 | BROMADIOLONE TECHNICAL | Ia | Bromadiolone |
| 47629-9 | BROMETHALIN TECHNICAL | Ia | Bromethalin |
| 279-3060 | CARBOFURAN TECHNICAL | Ib | Carbofuran |
| 67760-43 | CHEMINOVA METHYL PARATHION 4 EC | Ib | Methyl parathion |
| 4787-33 | CHEMINOVA METHYL PARATHION TECHNICAL | Ib | Methyl parathion |
| 34704-259 | CLEAN CROP PHORATE 20G | Ib | Phorate |
| 13808-7 | COMPOUND 1080 LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 56228-26 | COMPOUND 1080 TECHNICAL (LPC) | Ia | 1080 |
| 47000-144 | CO-RAL COUMAPHOS 25% DUST BASE | Ib | Coumaphos |
| 11556-98 | CO-RAL COUMAPHOS FLOWABLE INSECTICIDE | Ib | Coumaphos |
| 11556-123 | CO-RAL PLUS INSECTICIDE CATTLE EAR TAG | Ib | Coumaphos |
| 11556-148 | CORATHON | Ib | Coumaphos |
| 11678-53 | COTNION-METHYL | Ib | Azinphos-methyl |
| 66222-11 | COTNION-METHYL AZINPHOS METHYL 50W | Ib | Azinphos-methyl |
| 11556-11 | COUMAPHOS TECHNICAL | Ib | Coumaphos |
| 5481-545 | COUNTER 15G SYSTEMIC INSECTICIDE-NEMATICIDE | Ib | Terbufos |
| 5481-562 | COUNTER 20G | Ib | Terbufos |
| 5481-547 | COUNTER CR | Ib | Terbufos |
| 5481-546 | COUNTER TECHNICAL POISON SOIL INSECTICIDE | Ia | Terbufos |
| 5481-447 | DICROTOPHOS TECHNICAL | Ib | Dicrotophos |
| 47629-12 | DIFENACOUM TECHNICAL | Ia | Difenacoum |
| 7173-204 | DIFETHIALONE TECHNICAL | Ia | Difethialone |
| 61282-5 | DIPHACINONE, TECHNICAL GRADE FOR MANUFACTURING ONLY | Ia | Diphacinone |
| 352-361 | DU PONT METHOMYL COMPOSITION | Ib | Methomyl |
| 5481-492 | DUPONT FORTRESS TECHNICAL | Ia | Chlorethoxyphos |
| 352-342 | DUPONT LANNATE SP INSECTICIDE | Ib | Methomyl |
| 352-366 | DUPONT METHOMYL TECHNICAL | Ib | Methomyl |
| 352-400 | DUPONT OXAMYL TECHNICAL 42 INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 5481-9043 | ETHOPROP TECHNICAL | Ib | Ethoprop |
| 5481-493 | FORTRESS 5G GRANULAR INSECTICIDE | Ib | Chlorethoxyphos |

| | | | |
|---|---|---|---|
| 279-2876 | FURADAN 4F INSECTICIDE/NEMATICIDE | Ib | Carbofuran |
| 279-3038 | FURADAN 85 DB | Ib | Carbofuran |
| 279-3310 | FURADAN LFR INSECTICIDE/NEMATICIDE | Ib | Carbofuran |
| 10163-78 | GOWAN AZINPHOS-M 50 WSB | Ib | Azinphos-methyl |
| 66222-162 | GUTHION SOLUPAK 50% WETTABLE POWDER INSECTICIDE | Ib | Azinphos-methyl |
| 11678-70 | GUTHION TECHNICAL INSECTICIDE | Ib | Azinphos-methyl |
| 61282-38 | HOPKINS COV-R-TOX ENCAPSULATED WARFARIN - 50% TECHNICAL | Ib | Warfarin |
| 61282-39 | HOPKINS WARFARIN TECHNICAL RODENTICIDE | Ib | Warfarin |
| 13808-8 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 33858-2 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 35975-2 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 35978-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 39260-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 39508-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 56228-15 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 56228-32 | M-44 CYANIDE CAPSULES ARCTIC FOX | Ib | Sodium cyanide |
| 10707-10 | MAGNACIDE B MICROBIOCIDE | Ib | Acrolein |
| 10707-9 | MAGNACIDE H HERBICIDE | Ib | Acrolein |
| 7173-174 | MAKI TECHNICAL | Ia | Bromadiolone |
| 7946-11 | MAUGET INJECT-A-CIDE B | Ib | Dicrotophos |
| 10163-252 | MESUROL 75 WDG | Ib | Methiocarb |
| 10163-229 | MESUROL 75% CONCENTRATE | Ib | Methiocarb |
| 56228-33 | MESUROL 75% WETTABLE POWDER AVERSIVE CONDITIONING EGG TREATMENT | Ib | Methiocarb |
| 10163-231 | MESUROL 75-W | Ib | Methiocarb |
| 10163-230 | MESUROL TECHNICAL INSECTICIDE | Ib | Methiocarb |
| 100-530 | METHIDATHION TECHNICAL | Ib | Methidathion |
| 10163-245 | METHIDATHION TECHNICAL | Ib | Methidathion |
| 5481-9041 | MOCAP EC NEMATICIDE - INSECTICIDE | Ib | Ethoprop |
| 279-2862 | NIAGARA FURADAN 75 BASE | Ib | Carbofuran |
| 5481-8980 | PHORATE 20 G | Ib | Phorate |
| 9779-293 | PHORATE 20-G | Ib | Phorate |
| 5481-8979 | PHORATE TECHNICAL INSECTICIDE | Ia | Phorate |
| 83100-28 | ROTAM METHOMYL 90SP INSECTICIDE | Ib | Methomyl |
| 81598-9 | ROTAM METHOMYL TECHNICAL | Ib | Methomyl |
| 7173-75 | ROZOL RODENTICIDE TECHNICAL POWDER | Ia | Chlorophacinone |
| 72500-15 | SLN PHARMACHEM WARFARIN | Ib | Warfarin |
| 5481-561 | SMARTCHOICE 5G | Ib | Chlorethoxyphos |
| 35975-4 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 35978-8 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 39508-2 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 46779-1 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 56228-22 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |

| | | | |
|---|---|---|---|
| 36029-14 | STRYCHNINE ALKALOID N.F. | Ib | Strychnine |
| 27995-1 | STRYCHNINE ALKALOID N.F. POWDER | Ib | Strychnine |
| 37259-1 | STRYCHNINE ALKALOID NFX | Ib | Strychnine |
| 5481-9031 | TEBUPIRIMPHOS TECHNICAL | Ia | Phostebupirim |
| 12455-88 | TECHNICAL BRODIFACOUM | Ia | Brodifacoum |
| 12455-70 | TECHNICAL BROMADIOLONE | Ia | Bromadiolone |
| 12455-92 | TECHNICAL BROMETHALIN | Ia | Bromethalin |
| 12455-25 | TECHNICAL DIPHACINONE | Ia | Diphacinone |
| 61282-1 | TECHNICAL DIPHACINONE | Ia | Diphacinone |
| 12455-26 | TECHNICAL WARFARIN | Ib | Warfarin |
| 100-1015 | TEFLUTHRIN TECHNICAL | Ib | Tefluthrin |
| 264-330 | TEMIK BRAND 15G ALDICARB PESTICIDE | Ib | Aldicarb |
| 5481-526 | THIMET 10-G SOIL AND SYSTEMIC INSECTICIDE | Ib | Phorate |
| 5481-527 | THIMET 15-G SOIL AND SYSTEMIC INSECTICIDE | Ib | Phorate |
| 5481-530 | THIMET 20-G | Ib | Phorate |
| 5481-528 | THIMET MC - 85 FOR MANUFACTURING PURPOSES ONLY | Ia | Phorate |
| 5481-529 | THIMET TECHNICAL FOR MANUFACTURING PURPOSES ONLY | Ia | Phorate |
| 352-532 | VYDATE C-LV INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 352-372 | VYDATE L INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 69826-1 | WARFARIN TECHNICAL | Ib | Warfarin |
| 3282-32 | WINCON WARFARIN TECHNICAL | Ib | Warfarin |
| 61282-3 | ZINC PHOSPHIDE 93 | Ib | Zinc phosphide |

NOTE: WHO classification is based on acute risks to human health. Class Ia = extremely hazardous, Class Ib = highly hazardous.

# Appendix 2: Check list for combined Food Alliance and Salmon Safe Certification of Nursery and Greenhouse Operations

I. For each production system, the following boxes must ALL BE CHECKED in order for the applicant to claim Salmon Safe certification, to make Salmon Safe-related marketing claims or to use any Salmon Safe promotional materials, such as seals, etc. If the operation does not use a particular production system, mark that system NA.

A. **Field Production**

Standard Area: **Soil and water conservation**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- ☐ As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- ☐ Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

- ☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

- ☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

B. **Container Production**

Standard Area: **Soil and water conservation for all areas**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways.

**C. Greenhouse Production**

Standard Area: **Soil and water conservation for inside greenhouses**

Evaluation Criteria: **Irrigation water conservation**

☐ Greenhouse works on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Standard Area: **Soil and water conservation for all areas outside greenhouses**

Evaluation Criteria: **Stream channel protection and restoration**

☐ Stream crossings avoid filling, excavating, or straightening stream channels.

☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate

☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.

☐ Unnecessary removal of woody debris is avoided.

☐ Disconnection of off-channel wetlands and ponds is avoided.

☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.

☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

☐ As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.

☐ Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

## II. Salmon Safe HIGH HAZARD PESTICIDE LIST

Certain pesticides are a serious threat to salmon and other aquatic life. In addition to killing fish, these pesticides at sub-lethal concentrations can stress juveniles, alter swimming ability, interrupt schooling behaviors, cause salmon to seek sub-optimal water temperatures, inhibit seaward migration and delay spawning. All of these behavioral changes ultimately affect survival rates.

The following table (next page) lists many of the pesticides known to cause problems for salmon and other fish. The list includes chemicals that could be used in nursery and greenhouse applications that are listed with the EPA in various risk categories. Use this chart to help identify pesticides that require

special consideration. Please note that this chart lists only some of the currently available pesticides in common usage.

A nursery using any of the pesticides indicated as "High Hazard" below may be certified only if Salmon-Safe's variance request form is submitted *in advance* demonstrating a clear need for use of the pesticide, that no safer alternatives exist, that the method of application (such as timing, location, and amount used) represents a negligible risk to water quality and fish habitat, *and* that the landowner has consulted with university extension or comparable technical expert.

### Salmon Safe "HIGH HAZARDOUS" Agricultural Pesticides

1,3-dichloropropene
2,4-D
Abamectin
Acephate
Altacor
Atrazine
Azinphos-Methyl
Bensulide
Bentazon
Bifenazate
Bifenthrin
Bromoxynil
Carbaryl
Carbofuran
Carboximide
Carboxin
Carfentrazone-ethyl
Chlorothalonil
Chlorpyrifos
Copper Sulfate*
Coumaphos
Cyhalothrin
Cypermethrin
Diazinon
Dicamba
Dichlobenil
Diclofop-methyl
Diflubenzuron
Dimethoate
Dimethylformamide
Disulfoton
Dithane
Diuron
Dodine P
Emamectin Benzoate
Esfenvalerate
Ethoprop
Extoxazole Technical
Fenamiphos
Fenbutatin-Oxide
Fenpropathrin P
Fenpyroximate
Flumioxazin P
Hexythiazox P
Imidacloprid
Iprodione
Linuron
Malathion
Mancozeb/Penncozeb
Methamidophos
Methidathion
Methomyl
Methyl Parathion
Metolachlor
Metribuzin
Molinate
Nale
Norflurazon
Oryzalin
Oxyfluorfen
Paraquat Dichloride
Parathion
Pebulate
Pendimethalin
Permethrin
Phorate
Phosmet
Prometryn
Propargite
Propiconazole
Pyriproxyfen P
Rimon
Quintozene
Rimon
Simazine
Spirodiclofen
Tebuthiuron
Terbacil
Terbufos
Thiacloprid
Thiocarbamate
Thiophanate-methyl P
Thiram
Triclopyr
Trifluralin

*Salmon-Safe restrictions apply to any copper-containing pesticide including copper hydroxide, copper ammonium hydroxide, copper carbonate, and copper oxide, and others.

**P:** Pending Review. This list is based on EPA hazard level for fish and fish habitat. It is revised as pesticide registrations are updated and as more environmental data becomes available

## End Notes

[1] This criterion should allow for flexibility in record keeping with larger vs. smaller nursery operations. Nursery managers or tenant growers need to have written documentation. Satisfactory progress should be made to address nursery features and operations that may degrade salmon habitat such as irrigation ponds, road crossings, or concrete-lined streams. These restoration efforts may include those required by the evaluation team to address deficiencies, and efforts already being undertaken by nursery management. This progress may include prioritized project lists for the nursery, plans for specific projects, or other requirements determined by the review team. There is demonstrated progress in correcting management deficiencies.

[2] Pesticide records are a key element of the inspection process and are the only way inspectors can verify activities in the past.

[3] USDA requires, and states enforce, the following records for all applications of restricted use pesticides: name of applicator, date, field location or area, area treated, pesticide name and EPA registration number, total amount applied, and crop.

[4] Properly managed, flood irrigation can be operated in perennial systems to increase overall nursery productivity, without causing erosion (in or below the field) and to maintain good litter distribution.

[5] For nurseries with a choice of irrigation water sources, the selected source of irrigation water results in the least potential impact to in-stream flows of fish-bearing streams, both on nursery property and downstream from it. Fish losses must be avoided by installing fish screens on diversions in accordance with the State Department of Fish and Wildlife, or other similar guidance requirements specific to the Nursery's geographic location

[6] For more information see:
http://www.climatefriendlynurseries.org/resources/best_management_practices_for_climate_friendly_nurseries.pdf

# IV-C. Evaluation Tool for Plant Production: Greenhouse Production

☐ N/A: This nursery has NO greenhouse plant production areas.

NOTE: Greenhouses are defined as those plant production operations utilizing structures with heat and other artificial environmental controls. Greenhouse operations with facilities qualifying as container nurseries or with field edges, scion orchards, display gardens, drainage areas and natural areas will also be evaluated under the Container Production and Field Production criteria for those specific portions of the operation. Field and container production nurseries with controlled environment structures such as those listed above will also be evaluated under the Greenhouse Production criteria for those specific portions of the nursery.

Name of Operation:

---

Date of Inspection:

---

Site Inspector:

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## Instructions for Use

1. Each standard area is scored according to Food Alliance evaluation criteria. Points are given for performance of each evaluation criteria as measured against the indicators in Levels 1 through 4. Points are only earned for the highest Level achieved.

2. Scoring partial points is allowed. Example: Half of the operation is in a four-year crop rotation, a Level 3 practice. You may score 2.5 points, or half the increase between Level 2 and Level 3, as a result.

3. No points are earned for a criterion that is not applicable (N/A) to the operation or region. These points are subtracted from the total as explained on the score sheet. This ensures all operations are scored fairly, based on the actual facilities present and practices in use. A full explanation for any N/A is required.

4. For producer/managers reviewing this evaluation tool: This is only a guideline for your use and does not guarantee acceptance of your application.

5. Inspectors should make notes on each criterion describing how they arrived at decisions, <u>including means used to verify all specific producer/manager claims</u>. These notes provide important background, which will be carefully considered in the final certification decision. Please make note of any criteria or indicators that were not applicable and the reason. Also include any Best Management Practices (BMPs) implemented by the producer/manager that are not listed in this inspection tool. Please be sure to consult the endnotes provided, as they provide guidelines for inspection criteria.

6. Inspectors may request records or other materials to document any claims made by producer/manager.

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## Integrated pest, disease and weed management, and pesticide risk reduction

NOTE: we use 'pest' in its inclusive sense to refer to all insects, mites, nematodes, pathogens and weeds that are injurious to crop yield and quality

### Continuing education for IPM

**Level 1: Manager exhibits little or no knowledge of IPM strategies and tactics. Current operation reflects this knowledge gap with no planning that is based on knowledge of severity or impacts of pests, clear evidence of unnecessary pest outbreaks and may use practices that are risky on and off the operation to ecological services and natural resources.**

**Level 2: Manager relies on general interest publications, salesmen to learn about pest management issues. Manager may not be connected to independent sources of knowledge or advice about pest management, but shows evidence of knowledge of prevention, avoidance and biologically-based tactics and the risks associated with IPM practices.**

**Level 3: Manager uses independent, technical information, specific to crop and location and relevant to diverse prevention, avoidance, monitoring, and suppression (PAMS) tactics, ecological service management and pesticide risk reduction. Manager participates in independent education events. Manager can discuss and communicates plans, practices and mitigation approaches. Manager is a licensed private applicator, and meets all continuing education requirements for licensed private applicators.**

**Level 4: As per Level 3, and manager participates in on-site research to develop management or mitigation practices**

SCORE:

VERIFICATION METHODS AND NOTES:

### IPM planning [1]

**Level 1. New greenhouse plantings are established without regard to environmental impact. Planning to prevent pests is rare. For ongoing pest control, curative measures are emphasized rather than preventive, i.e., herbicides are applied to the same weeds year after year in more or less the same production houses.**

**Level 2. Crop losses to pests are reduced by the planned use of preventive measures. Greenhouse managers have a written nursery plant protection plan detailing the following provisions <u>or</u> can communicate the methods they use for monitoring pests and their phenology, and weather conditions. Manager can identify pest management decisions based on this monitoring, including estimations of action thresholds. <u>Three or more</u> of the following indicators of IPM practices are evident (check <u>all that apply</u>):**

- ☐ Site selection, floor management design and other aspect of house design that can minimize pest activities are taken into account when establishing greenhouse production facilities.
- ☐ Greenhouse sanitation measures, such as foot dips, screening, positive pressure, etc., are used.
- ☐ Greenhouse production bench sanitation is practiced as a preventative measure.
- ☐ If plant containers are reused, containers are sanitized prior to reuse.

- ☐ Canopy humidity management measures, such as plant density, irrigation, raised benches, active ventilation, etc., are used.
- ☐ Insect/disease/weed population sampling informs pest management.
- ☐ Greenhouse production bench scouting is done by a certified IPM practitioner.
- ☐ Insect/disease/weed phenology/degree day modeling or other management tool informs pest management decisions.
- ☐ Pest and disease resistant varieties are used.
- ☐ Certified virus-free stock is used.
- ☐ Trap crops and/or indicator plants are used for capturing harmful insects, indicating the presence of harmful insects or as harbors for beneficial insects on greenhouse production bench perimeters.
- ☐ Other:

**Level 3. As per Level 2, and <u>a total of four or more</u> from Level 2 apply (check <u>all that apply</u>). Manager can explain how IPM plan considers pest status and impacts, and how IPM plan employs prevention, avoidance and biologically based tactics in the context of clearly defined production goals. Manager can explain how IPM plan reduces impacts on beneficial and other natural resources in the context of clearly defined protection goals.**

**Level 4. As per Level 3, and <u>a total of five or more</u> from Level 2 apply (check <u>all that apply</u>). Manager can show that pest risks are exhibiting a downward trend.**

- ☐ Nursery is a member of the USNCP program.

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Weather monitoring

**Level 1. Weather is not monitored.**

**Level 2. Important weather parameters are monitored on site, or a site-specific weather service is employed. Pesticides are not applied when weather conditions are not appropriate (e.g. too hot or when greenhouses are vented to outside conditions).**

**Level 3. As per Level 2, and greenhouse environment is managed to avoid diseases and disorders common to the location.**

**Level 4. As per Level 3, and where appropriate weather data is used to schedule pesticide applications (e.g. phenology or degree-day models), irrigation, etc.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Crop monitoring/greenhouse production bench scouting

**Level 1. Crops/greenhouse production benches are not monitored.**

**Level 2. Production records are maintained including inputs (e.g. chemicals, fertilizers, irrigation, etc.) yields, and quality. Greenhouse sets action thresholds to determine at what point treatment is necessary. Post-application evaluations are used to determine whether the treatment was effective, and what else needs to be done.**

**Level 3. As per Level 2, and crops/greenhouse production benches are regularly scouted (weekly, or some other schedule sensible for the area) or sampled for insects, diseases, weeds and disorders. There is evidence that threshold monitoring is an important part of the pest management process. At least two of the following indicators of monitoring/scouting are evident (check all that apply):**

- ☐ Pheromone traps
- ☐ Sticky traps
- ☐ Trap crops
- ☐ Indicator plants
- ☐ Light attractants
- ☐ Sweep nets
- ☐ Hand lenses/binoculars
- ☐ Flags marking container production bed sampling locations
- ☐ Scouting records or notes
- ☐ Other:

**Level 4. A total of three or more from Level 3 apply, and scouting records/crop-monitoring records are collected and maintained. These records are reviewed and used to inform and improve pest management strategies and/or scouting methods in subsequent seasons. Software may be used to do comparisons and predictive modeling.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Lowest effective application rates/reducing application rates

**Level 1. Pesticide application rates are selected according to manufacturer's label.**

**Level 2. Reduced dosage strategies, such as spot spraying, leaving refugia, or alternate bench spraying, are employed when the target pest does not require complete coverage.**

**Level 3. Applications are chosen based on four or more of the following (check all that apply):**

- ☐ To match density and severity of the pest (insect, disease, weed) problem
- ☐ To preserve beneficial insects
- ☐ When using concentrate (low-volume) applications
- ☐ To account for the density of plantings
- ☐ To account for the size of plants
- ☐ Based on bench volume (canopy cover, plant size)
- ☐ Number of applications made
- ☐ Frequency of applications
- ☐ Using novel spray technology
- ☐ Spot applications are made (i.e. for weeds)

- ☐ Steam sterilization is used when possible and appropriate
- ☐ Other:

**Level 4. As per Level 3, and excessive synthetic pesticides are not used. All pesticide (synthetic and organic) toxicity rankings are maintained with pesticide records and tabulated annually to indicate progress in reducing overall use of high toxicity pesticides.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Pesticide selection, justification and resistance management

**Level 1. <u>All</u> of the following apply:**

- ☐ Only pesticides registered in the state as approved for target pests and crop are used.
- ☐ Pesticide mixtures prohibited by the label are not used.

**Level 2. As per Level 1, and for applications made using equipment covering larger areas (e.g. boom applications) pesticide selections and recommendations are made by licensed applicators and/or licensed consultants. (N/A for spot applications of non-RU pesticides)**

**AND**

**Where possible, all pesticides used that are at risk of developing pest resistance are mixed or alternated with other pesticides of a different chemical class/mode of action, starting with the first year of use. Pesticide rotation is documented.**

**Level 3. As per Level 2, and the timing of applications and selection of pesticide materials correspond with scouting records or monitoring.**

**Level 4. When a control measure is deemed necessary or required by quarantine, every effort is made to use beneficial organisms, cultural controls and/or reduced toxicity pesticides (labeled "Caution").**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Pesticide record keeping [2]

**Level 1. All legal requirements for pesticide record keeping are met.**[3]

**Level 2. As per Level 1, and pesticide records include <u>two or more</u> of the following additional pieces of information (check <u>all that apply</u>):**

- ☐ Crop growth stage
- ☐ Compatibility with biocontrol agents
- ☐ Disease/Pest growth stage
- ☐ Purpose of the pesticide treatment, (i.e. target pest)
- ☐ Threshold used to guide pesticide treatment
- ☐ Current weather data, e.g. weather conditions on day of application

- ☐ Accumulated weather data, e.g. growing degree days to determine pest outbreaks
- ☐ Effectiveness of pesticide treatment
- ☐ Calibration records

**If commercial companies apply pesticides on this greenhouse operation, those records are requested and maintained on site.**

**Level 3. As per Level 2, and pesticide records are kept for longer than two years. Greenhouse manager can relate how records are used year-to-year to examine trends and aid management decisions.**

**Level 4. As per Level 3, and pesticide records include <u>a total of five or more</u> pieces of information listed in Level 2. Nursery manager can relate which pesticides are no longer used on the nursery (and why), as well as newer pesticides that are being used/tried.**

**SCORE:**

**VERIFICATION METHODS/NOTES:**

## Hazardous Material Storage

**Level 1. Storage facilities for hazardous materials (crop and livestock pesticides, fertilizers, fuel, lubricants) meet legal requirements (where applicable). Hazardous materials are stored in original, clearly labeled containers.**

**Level 2. Storage is at least 150 ft. away from wells and 200 ft. away from surface water or sources of flame. <u>Four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Empty hazardous material containers are triple-rinsed before return to supplier, disposal in an approved recycling program or licensed landfill.
- ☐ Tank rinsate is sprayed out on labeled crops at labeled rate or less.
- ☐ Storage size and organization is adequate to separate flammables from other materials.
- ☐ Pesticides are organized by insecticides, fungicides, herbicides, fertilizers, etc.
- ☐ Containers are organized to prevent spillage when storing/removing materials.
- ☐ Non-hazardous materials (e.g., seed, livestock feeds) are kept away from hazardous materials.
- ☐ Storage area is clearly marked on the outside with warning signs.
- ☐ Flammables are kept out of direct sunlight.
- ☐ Dry materials are stored above liquids.
- ☐ Storage area is locked, and lock allows free exit from within when locked.
- ☐ Other (please specify):

**Level 3. As per Level 2, and a current written inventory is maintained and accessible in the event of an emergency. An emergency plan is posted, directing people what to do in case of an emergency. <u>Three or more</u> of the following apply:**

- ☐ Storage area has a sealed floor.
- ☐ Storage area is well ventilated (no strong chemical smell).
- ☐ Inventory is managed on a first-in, first-out basis.
- ☐ Operation has a written internal audit process for dealing storage and safety issues associated with hazardous materials.
- ☐ Other (please specify):

**Level 4. Hazardous wastes are limited due to success in eliminating use of pesticides labeled "Danger" or "Warning" OR, as per Level 3 and storage area is "state of the art" and all of the following apply:**

- ☐ Storage area is located in a separate facility or building.
- ☐ The storage area is diked/curbed to contain spills.
- ☐ Capacity of the diking system is at least 125% of the largest quantity stored.
- ☐ Shelves are lipped and of an impermeable material.
- ☐ Road access is adequate for delivery and emergency vehicles.
- ☐ Storage area is locked, and lock allows free exit from within when locked.
- ☐ Valves on (large) storage tanks are locked when not in use where other security measures are not in place (if applicable).
- ☐ Storage is downwind (prevailing wind) from nearby housing, play or livestock areas.

SCORE:

VERIFICATION METHODS/NOTES:

## Application Equipment Calibration and Pesticide Drift Management

**Level 1. Application equipment that can be calibrated (insecticide, fungicide, herbicide growth regulator, fertilizer application equipment) is calibrated less than once per year. Applications are made only with equipment designed for that use. Nozzles are checked and replaced when necessary.**

**Level 2. Check the following, as applicable:**

- ☐ Products are mixed according to label directions.
- ☐ Application equipment is calibrated at the start of each season, if designed to be calibrated.
- ☐ Drift reduction strategies are used.
- ☐ Applications are made only under weather conditions that minimize off-site movement (e.g., low wind speed, not raining).
- ☐ Commercial application companies are hired on this operation.

**Level 3. As per Level 2, and**

- ☐ Spot applications are used exclusively on this operation. All of the following apply:
  - ☐ Spot applications are limited to infested areas.
  - ☐ Pressure gauge on applicator is calibrated regularly.
  - ☐ Training is provided in proper use of equipment for efficient and effective application.

**OR all of the following apply:**

- ☐ The method of calibration is communicated to the inspector via written calibration records or verbal description. Note: Inspectors must feel confident that the method of calibration is adequate. Provide notation as to calibration methods used.
- ☐ When possible, calibration is adjusted to control amount applied and distribution of application (e.g., air blast sprayer nozzle distribution matches plant canopy size and shape).
- ☐ Buffer areas are established around fields to help reduce drift.
- ☐ Other (please specify):

**Level 4. As per Level 3, and at least one of the following apply:**

- ☐ Application equipment is calibrated more than once per season or uses technology that continuously calibrates.
- ☐ Technology is employed to keep particle size above 150 microns, **depending on the type of equipment and pesticide used**.
- ☐ Water sensitive paper and spray droplet analysis software is used to avoid drift or over-application.
- ☐ Pesticide application equipment is selected and maintained for site-specific conditions (e.g., hooded sprayers for windy sites).
- ☐ Storage is downwind (prevailing wind) from housing, play or livestock areas.
- ☐ An emergency plan is posted, directing people what to do in case of an emergency.

SCORE:

VERIFICATION METHODS/NOTES:

### Scorecard for integrated pest, disease and weed management

| | SCORE/LEVEL |
|---|---|
| Continuing education for IPM | |
| Production plan including IPM | |
| Weather monitoring | |
| Crop monitoring/greenhouse production bench scouting | |
| Lowest effective application rates/reducing application rates | |
| Pesticide selection, justification and resistance management | |
| Pesticide record keeping | |
| Hazardous material storage | |
| Application equipment calibration and pesticide drift management | |
| | |
| (1) TOTAL POINTS EARNED | |
| | |
| Total Points Available | 36 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Soil and water conservation evaluation criteria <u>inside</u> greenhouses

### Continuing education for soil and water conservation

**Level 1. Manager demonstrates little or no knowledge about soil and water conservation. Current greenhouse operation reflects this knowledge gap, with no special planning or action considered to prevent soil erosion, conserve water, and protect water quality.**

**Level 2. Manager relies on general interest Ag publications (newspapers and general newsletters, etc.) to learn about soil and water conservation. In the course of the discussion, manager demonstrates a basic understanding of the issue area.**

**Level 3. Manager uses technical, subject matter-specific information sources to aid in soil and water conservation. Manager can discuss these issues and communicates technical knowledge of the following specific soil and water conservation issues. If relevant national or state-wide best management practices (BMP's)[5] exist, manager can describe which BMP's are meaningful to their operation and how they have been incorporated. Check all that apply:**

- ☐ Erosion prevention strategies
- ☐ Nutrient budgets
- ☐ Innovative irrigation systems and management
- ☐ Soil quality monitoring
- ☐ Precision application of plant nutrients
- ☐ Incorporation of crop residue or compost in container mix
- ☐ Riparian habitat and buffer zones around surface waters
- ☐ Carbon sequestration in agricultural soils, (i.e. around greenhouse facility perimeters)
- ☐ Water conservation practices (list practices used)
- ☐ Other (please specify):

**Level 4. As per Level 3, and manager participates (or has participated in the last 5 years) in either on-site testing of soil or media, and/or water conservation strategies to evaluate their usefulness, or, participates in a local or regional water quality council or organization. Manager also documents performance of on-site soil and water conservation practices.**

SCORE:

VERIFICATION METHODS/NOTES:

Irrigation systems[4] inside greenhouses

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**Level 1. An irrigation system is used that appears inefficient and may allow water, nutrients, pesticides and/or soil particles to leave the site.**

**Level 2. An irrigation system with three or more of the following improvements is used (check all that apply):**

- ☐ Drop pivot systems use high efficiency drop nozzles.
- ☐ Sprinkler systems make use of low pressure, micro-sprinklers.
- ☐ Drip emitter systems are used.
- ☐ Trickle emitters are used when appropriate for the crop.
- ☐ Soil moisture sensors are used to monitor moisture.
- ☐ Variable frequency drive pumps are used.
- ☐ Crop modeling is used to predict plant demand.
- ☐ A sub-irrigation system is utilized.
- ☐ An ebb and flow system is utilized.
- ☐ A weather data system is used to estimate crop water use.
- ☐ Other (please specify):

**Level 3. A total of five or more from Level 2 apply (check all that apply). If relevant national or state-wide best management practices (BMP's) exist, manager can describe which BMP's are meaningful to their operation and how they have been incorporated.**

**Level 4. As per Level 3, and a total of six or more from Level 2 apply (check all that apply). Improvements in water use efficiency for the greenhouse operation are documented.**

SCORE:

VERIFICATION METHODS/NOTES:

Irrigation water conservation inside greenhouses[6]

---

**Level 1. Water use or need is not monitored or planned.**

**Level 2. Either**

- ☐ Water use is monitored and data is recorded.

**OR**

- ☐ Annual planning for available water is a priority (as applies to regions with seasonal water availability).

**Level 3. If national or state-wide best management practices (BMP's) exist, manager can describe which BMP's are meaningful to their operation and how they have been incorporated. As per Level 2, and five or more of the following irrigation management behaviors are evident (check all that apply):**

- ☐ Irrigation activities are initiated based on moisture testing.
- ☐ Water use data is analyzed and interpreted for managers and staff for the purpose of improving water conservation techniques.
- ☐ Irrigation practices consider media type and infiltration rates.
- ☐ Weather information is factored into the timing of irrigation activities.
- ☐ Crop demand or consumptive use is factored into irrigation activities.
- ☐ Non-synthetic fertilizers, e.g. vermicompost, are incorporated into media and improvement in organic matter is detected.
- ☐ Water system is completely closed, with no water discharged on- or off-site.
- ☐ Water is collected and recycled for other uses using crowned, graveled floors, permeable road cloth, collection tile lines that direct run off to ponds or underground tanks on-site.
- ☐ Water is collected in French drain systems and discharged slowly on-site.
- ☐ Water is collected in a leach field and discharged slowly on-site.
- ☐ Manager participates in a local or regional body responsible for water issues such as over-allocation, groundwater recharge, stream flow, etc.
- ☐ Other (please specify):

**Level 4. A total of eight or more items from Levels 3 and 4 apply (check all that apply):**

- ☐ Greenhouse operation works on diversions, including installing and servicing pumps and intakes, only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits. If in-stream work is done when there is water in the stream, water is diverted around the construction area to limit impacts to habitat. Turbidity curtains and other in-stream sediment control and containment measures should be used to prevent sediment and construction debris from entering the waterway
- ☐ Greenhouse water is conserved by scheduling timing of water application in specific consideration of crop requirements, outside temperatures, media types and known evapotranspiration rates for the area. Media moisture is to provide timely information about soil moisture levels relative to crop needs to improve irrigation efficiency. Excessive water application is unacceptable. Irrigation withdrawal volumes and rates are measured and

recorded, with the intent of showing a reduction in water use over time or demonstrating that no further efficiencies are feasible.

- ☐ Greenhouse operation monitors the performance of their irrigation system equipment and routinely monitors it to verify that motors, pumps, and delivery systems are performing well and according to specifications. If the only available irrigation source is a salmon-bearing or potentially salmon-bearing stream, irrigation withdrawals should not significantly limit habitat conditions or harm fish

**If it is reasonably possible that fish may be harmed by irrigation withdrawals, the manager should implement <u>one or more</u> of the following to the greatest extent operationally feasible. Check <u>all that apply</u>:**

- ☐ Greenhouse operation attempts to reduce the amount of area planted with high water demand crops.
- ☐ Greenhouse operation utilizes permeable, woven-fabric cloth below benches in propagation houses and other environmentally controlled structures to allow irrigation water to slowly absorb back in to the ground beneath.
- ☐ Greenhouse operation seeks alternative sources of water that do not limit habitat quality, particularly when required by fish during critical periods of their life cycle.
- ☐ Greenhouse operation considers leasing excess water rights to Oregon Water Trust, Washington Water Trust, or the Columbia Basin Water Transactions Program.
- ☐ Greenhouse operation uses no-potable water (captured rainwater, recycled graywater, reclaimed/treated wastewater, recycled/treated irrigation tailwater, etc.) for 70% of total irrigation volume.

SCORE:

VERIFICATION METHODS/NOTES:

## Nutrient management inside greenhouses

**Level 1. There is no nutrient management plan in place. Neither media nor plant tissues are monitored for nutrient levels.**

**Level 2. For fertilizer applications <u>four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Plant tissue testing is completed at regular intervals appropriate to the crop.
- ☐ Media pH is monitored and adjusted to ensure proper nutrient availability and uptake.
- ☐ Media and/or plant tissue tests are used to determine fertilizer application rates.
- ☐ Fertilizer applications comply with University or Extension crop and region-specific recommendations for rates and timing to minimize leaching and runoff while meeting plant needs.
- ☐ Manager considers media type, previous crop history, expected yields, and manures/composts in fertilizer applications and account for these in nutrient budgets.
- ☐ Slow release fertilizers are used.
- ☐ Soluble, short-lived fertilizers are used.
- ☐ Fertilizer is incorporated in to the media rather than applied on the surface.
- ☐ Split and/or dibbled applications are used.
- ☐ Organic fertilizers are used (e.g. animal manures, green manures, fish byproducts, kelp, bone meal, compost tea, ground up hazelnuts, meadowfoam byproducts, etc.) to meet but not exceed plant needs.

- ☐ Greenhouse operation cleans up and/or uses any spilled media from the planting and production process.
- ☐ Manager can describe how their operation recycles nutrients, and how they balance nutrient inputs with nutrient use.
- ☐ Other (please specify):

**Level 3. <u>A total of six or more from</u> Level 2 apply (check <u>all that apply</u>). If relevant national or state-wide best management practices (BMP's) exist, nursery can describe which BMP's are meaningful to their operation and how they have been incorporated. A nutrient management plan is in place that includes <u>at least two</u> of the following (check <u>all that apply</u>):**

- ☐ Includes consideration of fertilizer type for both plant nutrient needs and environmental impact (broadly defined).
- ☐ Use of precision fertilizer applications based on multiple samplings per bench (with varying application rates per bench or house).
- ☐ Greenhouse operation participates in education, cost-share and/or demonstration programs related to nutrient management planning.
- ☐ Greenhouse manger maintains records to demonstrate continuous improvement in nutrient management.
- ☐ One of the following three nutrient requirements is met exclusively with organic, noncommercial sources: nitrogen (N), phosphorous (P), or potassium (K), to meet but not exceed plant needs.

**Level 4. As per Level 3, and <u>a total of nine or more</u> practices from Level 2 apply. The nutrient management plan is written, and <u>three or more</u> from Level 3 apply. When available and as appropriate, the nutrient management plan is completed with the assistance of a professional. Important indicators of success are evident (check <u>all that apply</u>):**

- ☐ The majority of nutrients are provided by on-greenhouse operation sources.
- ☐ Advanced media quality indicators related to nutrient retention and uptake (e.g., organic matter content, aggregation) are monitored and improvements documented.
- ☐ Greenhouse operation uses no peat in any planting media including for propagation of liners.
- ☐ Greenhouse operation uses no bark in any planting media including for propagation of liners.
- ☐ Greenhouse operation reuses all organic matter through composting and recycling of 100% of all vegetative trimmings or offers them for sale to the public.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

Scorecard for soil and water conservation inside greenhouses

| | SCORE/LEVEL |
|---|---|
| Continuing education for soil and water conservation | |
| Irrigation systems inside greenhouses | |
| Irrigation water conservation inside greenhouses | |
| Nutrient management inside greenhouses | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 16 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Soil and water conservation evaluation criteria for all areas outside greenhouses[5]

### Stream channel protection and restoration (applies where operation has management control over streams on or adjacent to operation-managed property)

☐ N/A: There are no streams on or adjacent to operation-managed property **or** nursery has no management control over streams on or adjacent to operation-managed property.

**Level 1. Channel manipulation, such as filling, excavating and straightening, is done without consideration for stream channel morphology and function. Manager cannot describe impacts to stream functions, stream temperature and water quality resulting from on-site practices. Check all that apply:**

- ☐ Large and small woody debris are routinely removed from stream channels regardless of debris contribution to hydrologic or geomorphic function.
- ☐ Diversion structures present barriers for fish and wildlife.
- ☐ Floodplains and/or wetland areas appear in a degraded state (e.g., eroded areas of unusually sparse vegetation, hummocky, etc.) as applicable in a greenhouse operation.
- ☐ Other (please specify):

**Level 2. Manager can describe appropriate management techniques for restoration and protection of stream channels and in-stream habitat. Manager can demonstrate that at least three management techniques are being implemented. List management techniques:**

**Level 3. As per Level 2, and manager has a basic written plan for, or can describe how, operation protects, and where possible, enhances stream channel morphology and function. Three or more of the following apply (check all that apply):**

- ☐ Existing levees have been removed or are set back to avoid encroaching on the floodplain.
- ☐ Unnatural in-stream barriers to fish and wildlife have been removed, or plans are in place to remove them.
- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate.

- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where appropriate, irrigation diversion structures are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive storm water runoff from greenhouse operations or disturbed areas.
- ☐ Other (please specify):

**Level 4. As per Level 3, and active steps are being taken to restore stream channels to their natural condition. Channel manipulation, except for habitat restoration, is avoided to the greatest extent operationally feasible. A plan is in place to remove degraded wetlands from production and to restore natural functions to the greatest extent operationally feasible. <u>A total of five or more</u> from Level 3 apply (check <u>all that apply</u>).**

SCORE:

VERIFICATION METHODS/NOTES:

Buffer strips around waterways (natural and constructed)

---

**Level 1. Greenhouse production areas alongside waterways are currently managed to allow the following to occur less than 25 feet from water's edge (check <u>all that apply</u>):**

- ☐ There is evidence of sediment or greenhouse effluent reaching watercourses.
- ☐ Riparian and/or wetland areas appear in a degraded state (e.g., eroded areas of unusually sparse vegetation, hummocky, etc.).

**Level 2. Greenhouse production areas alongside waterways have been managed to achieve the following greater than 25 feet from water's edge (check <u>all that apply</u>):**

- ☐ Sedimentation appears to be contained by the buffer.
- ☐ Stream banks seem stable with no evidence of falling into the watercourse.

**Level 3. As the slope of the adjoining production area increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off. Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients, and sediment from adjoining fields and into surface waters (check <u>all that apply</u>):**

- ☐ Grass filter strips have been established and maintained in production areas above waterway.
- ☐ Riparian buffer areas are an average of 25-feet or more in width.
- ☐ The use of buffers and upland erosion-control measures has resulted in the prevention of the movement of sediment, nutrients, organics and pesticides beyond the edge of the production area.
- ☐ Where water temperatures are an issue, buffer vegetation is managed to provide shade.
- ☐ Where appropriate, buffer vegetation provides wood recruitment, leaf litter supply, stream bank stability and filtration of sediment to maintain aquatic habitat.
- ☐ Other (please specify):

**Level 4. As per Level 3, and <u>all</u> of the following apply (where applicable):**

- ☐ On slopes of 10 percent or greater, riparian zones are no less than 50 feet wide in any location.
- ☐ Riparian zones and buffer areas are adequately vegetated with a diverse mix of species containing greater than 50 percent of mixed multi-aged, native and non-invasive non-native species.
- ☐ Newly established ground cover plantings include a diverse mix of adapted grasses and forbs appropriate to the site.
- ☐ Ecologically appropriate, trees and shrubs provide a second-story of cover and habitat, especially along stretches of streams or rivers in need of bank stabilization and shade. The use of native species is recommended when available and appropriate.
- ☐ Wetlands not currently in production and are protected by a minimum 25 foot uncultivated buffer. If 25 foot buffers are not operationally feasible, buffer must be provided to the greatest extent operationally feasible.
- ☐ Once established, practices are managed appropriately and maintained to ensure effectiveness.

SCORE:

VERIFICATION METHODS/NOTES:

Irrigation systems for all areas outside greenhouses[6]

**Level 1. An irrigation system is used that appears inefficient and may allow water, nutrients, pesticides and/or soil particles to leave the site.**

**Level 2. An irrigation system with <u>three or more</u> of the following improvements is used (check <u>all that apply</u>):**

- ☐ Drop pivot systems use high efficiency drop nozzles.
- ☐ Sprinkler systems make use of low pressure, micro-sprinklers.
- ☐ Mist systems are used.
- ☐ Drip emitter systems are used.
- ☐ Trickle emitters are used when appropriate for the crop.
- ☐ Soil moisture sensors are used to monitor moisture.
- ☐ Variable frequency drive pumps are used.
- ☐ Crop modeling is used to predict plant demand.
- ☐ A sub-irrigation system is utilized.
- ☐ An ebb and flow system is utilized.
- ☐ A weather data system is used to estimate crop water use.
- ☐ Irrigation is computer controlled to minimize consumption.
- ☐ Other (please specify):

**Level 3. <u>A total of five or more</u> from Level 2 apply (check <u>all that apply</u>). If relevant national or state-wide best management practices (BMP's) exist, manager can describe which BMP's are meaningful to their operation and how they have been incorporated.**

**Level 4. As per Level 3, and <u>a total of seven or more</u> from Level 2 apply (check <u>all that apply</u>). Improvements in water use efficiency for the greenhouse operation are documented.**

SCORE:

VERIFICATION METHODS/NOTES:

Irrigation water conservation for all areas outside greenhouses[6]

**Level 1. Water use or need is not monitored or planned.**

**Level 2. Either**

- ☐ Water use is monitored and data is recorded.

**OR**

- ☐ Annual planning for available water is a priority (as applies to regions with seasonal water availability).

**Level 3. If national or state-wide best management practices (BMP's) exist, manager can describe which BMP's are meaningful to their operation and how they have been incorporated. As per Level 2, and five or more of the following irrigation management behaviors are evident (check all that apply):**

- ☐ Irrigation activities are initiated based on moisture testing.
- ☐ Water use data is analyzed and interpreted for managers and staff for the purpose of improving water conservation techniques.
- ☐ Irrigation practices consider media type and infiltration rates.
- ☐ Weather information is factored into the timing of irrigation activities.
- ☐ Crop demand or consumptive use is factored into irrigation activities.
- ☐ Drought resistant varieties are selected.
- ☐ Crops are produced without irrigation.
- ☐ Mulches and ground covers are used.
- ☐ Manures (animal and/or green) are incorporated into media and improvement in organic matter is detected.
- ☐ Water is collected and recycled for other uses using crowned, graveled floors, permeable road cloth, collection tile lines that direct run off to ponds or underground tanks on-site.
- ☐ Water is collected in French drain systems and discharged slowly on-site.
- ☐ Water is collected in a leach field and discharged slowly on-site.
- ☐ Manager participates in a local or regional body responsible for water issues such as over-allocation, groundwater recharge, stream flow, etc.
- ☐ Other (please specify):

**Level 4. A total of eight or more items from Levels 3 and 4 apply (check all that apply):**

- ☐ Greenhouse operation works on diversions, including installing and servicing pumps and intakes, only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits. If in-stream work is done when there is water in the stream, water is diverted around the construction area to limit impacts to habitat. Turbidity curtains and other in-stream sediment control and containment measures should be used to prevent sediment and construction debris from entering the waterway
- ☐ Greenhouse water is conserved by scheduling timing of water application in specific consideration of crop requirements, outside temperatures, media types and known evapotranspiration rates for the area. Media moisture is to provide timely information about soil moisture levels relative to crop needs to improve irrigation efficiency. Excessive water application is unacceptable. Irrigation withdrawal volumes and rates are measured and recorded, with the intent of showing a reduction in water use over time or demonstrating that no further efficiencies are feasible.

- ☐ Greenhouse operation monitors the performance of their irrigation system equipment and routinely monitors it to verify that motors, pumps, and delivery systems are performing well and according to specifications. If the only available irrigation source is a salmon-bearing or potentially salmon-bearing stream, irrigation withdrawals should not significantly limit habitat conditions or harm fish

**If it is reasonably possible that fish may be harmed by irrigation withdrawals, the manager should implement <u>one or more</u> of the following to the greatest extent operationally feasible. Check <u>all that apply</u>:**

- ☐ Greenhouse operation attempts to reduce the amount of area planted with high water demand crops.
- ☐ Greenhouse operation utilizes permeable, woven-fabric cloth below benches in propagation houses and other environmentally controlled structures to allow irrigation water to slowly absorb back in to the ground beneath.
- ☐ Greenhouse operation seeks alternative sources of water that do not limit habitat quality, particularly when required by fish during critical periods of their life cycle.
- ☐ Greenhouse operation considers leasing excess water rights to Oregon Water Trust, Washington Water Trust, or the Columbia Basin Water Transactions Program.
- ☐ Greenhouse operation uses no-potable water (captured rainwater, recycled graywater, reclaimed/treated wastewater, recycled/treated irrigation tailwater, etc.) for 70% of total irrigation volume.

SCORE:

VERIFICATION METHODS/NOTES:

Nutrient management for all areas outside greenhouses

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**Level 1. There is no nutrient management plan in place. Neither media nor plant tissues are monitored for nutrient levels.**

**Level 2. Fertilizer applications are performed using <u>four or more</u> of the following nutrient management practices (check <u>all that apply</u>):**

- ☐ Plant tissue testing is completed at regular intervals appropriate to the crop.
- ☐ Media pH is monitored and adjusted to ensure proper nutrient availability and uptake.
- ☐ Media and/or plant tissue tests are used to determine fertilizer application rates.
- ☐ Fertilizer applications comply with University or Extension crop and region-specific recommendations for rates and timing to minimize leaching and runoff while meeting plant needs.
- ☐ Manager considers media type, previous crop history, expected yields, and manures/composts in fertilizer applications and account for these in nutrient budgets.
- ☐ Slow release fertilizers are used.
- ☐ Soluble, short-lived fertilizers are used.
- ☐ Fertilizer is incorporated in to the media rather than applied on the surface.
- ☐ Split and/or dibbled applications are used.
- ☐ Organic fertilizers are used (e.g. animal manures, green manures, fish byproducts, kelp, bone meal, compost tea, ground up hazelnuts, meadowfoam byproducts, etc.) to meet but not exceed plant needs.
- ☐ Mulching is used to reduce nutrient leaching.

- ☐ Greenhouse operation cleans up and/or uses any spilled media from the canning and production process.
- ☐ Manager can describe how their operation recycles nutrients, and how they balance nutrient inputs with nutrient use.
- ☐ Other (please specify):

**Level 3. A total of six or more from Level 2 apply (check all that apply). If relevant national or state-wide best management practices (BMP's) exist, operation can describe which BMP's are meaningful to their operation and how they have been incorporated. A nutrient management plan is in place that includes at least two of the following (check all that apply):**

- ☐ Precision agricultural-guidance systems are used.
- ☐ Includes consideration of fertilizer type for both plant nutrient needs and environmental impact (broadly defined).
- ☐ A procedure to record observations on important indicators of success, like impacts on surface water on-site (e.g., algal blooms, excessive vegetation), etc.
- ☐ One of the following three nutrient requirements is met exclusively with organic, noncommercial sources: nitrogen (N), phosphorous (P), or potassium (K), to meet but not exceed plant needs.

**Level 4. As per Level 3, and a total of three or more from Level 3 apply. Additionally, a total of four or more from Level 2 apply. The nutrient management plan is written. When available and as appropriate, the nutrient management plans is completed with the assistance of a professional. Important indicators of success are evident (check all that apply):**

- ☐ The majority of nutrients are provided by on-greenhouse operation sources.
- ☐ Use of precision fertilizer applications based on multiple samplings per bench (with varying application rates per bench or house).
- ☐ Advanced media quality indicators related to nutrient retention and uptake (e.g., organic matter content, aggregation) are monitored and improvements documented.
- ☐ Greenhouse operation participates in education, cost-share and/or demonstration programs related to nutrient management planning.
- ☐ Greenhouse manger maintains records to demonstrate continuous improvement in nutrient management.
- ☐ Greenhouse operation uses no peat in any planting media including for propagation of liners.
- ☐ Greenhouse operation uses no bark in any planting media including for propagation of liners.
- ☐ Greenhouse operation reuses all organic matter through composting and recycling of 100% of all vegetative trimmings or offers them for sale to the public.
- ☐ Greenhouse operation uses floating islands of aquatic and other plants to remediate contaminants.

SCORE:

VERIFICATION METHODS/NOTES:

Soil organic matter management for all areas outside greenhouses

**Level 1. Organic matter is not monitored. Inorganic fertilizers supply the majority of plant nutrients. Fertilizers may be applied without regard to media testing or crop monitoring.**

**Level 2. Organic matter is considered a factor in management. Manager employs two or more of the following (check all that apply):**

- ☐ No-till, direct-seed, strip-till, or other restricted tillage practices are used.
- ☐ Seasonal cover crops that produce high volumes of organic material or root mass are used.
- ☐ Conservation cover (permanent vegetative cover) is planted between rows in orchards, vineyards, and other perennial row crops (e.g. scion orchards) is used.
- ☐ Mulches (natural or synthetic) are applied.
- ☐ Regular additions of organic matter (e.g. green manures, composts) are applied.
- ☐ Strip cropping with annuals and perennials is used.
- ☐ Least oxidizing inorganic fertilizers (e.g. urea versus anhydrous ammonia) are used.
- ☐ Perennial crops (e.g. scion orchards) are inter-rowed with cover crops.
- ☐ Fertilizers are applied using precision applications, banding applications and/or split applications.
- ☐ Precision agricultural-guidance systems are used.
- ☐ Other (please specify):

**Level 3. As per Level 2, and organic matter management is a priority. A total of four or more from Level 2 apply (check all that apply). Changes in organic matter resulting from implemented practices are documented.**

**Level 4. As per Level 3, and manager has eliminated use of inorganic fertilizers due to the successful implementation of media quality and fertility-management activities. Media tests are taken annually, and include organic matter content. Manager has developed and documented a plan for improvement on each individual production greenhouse site.**

SCORE:

VERIFICATION METHODS/NOTES:

Soil erosion prevention for all areas outside greenhouses

**Level 1. All applicable federal, state and local erosion-related legal requirements are met (if applicable, for e.g., buffer zones, management of highly erodible areas).**

**Level 2. As per Level 1, and soil erosion is monitored regularly. Where allowed, structure runoff is controlled to avoid erosion.**

If signs of erosion are present, check all that apply:

- ☐ Soil deposits exist at production area margins as evidence of erosion
- ☐ Substrate/media deposits exist at production area margins as evidence of erosion
- ☐ Channels and gullies are present
- ☐ Erosion pedestals are present
- ☐ Wind scoured areas, blowouts or depositional areas are present
- ☐ Surface-crusted areas are visible
- ☐ Other (please specify):

If erosion is present or reported, the manager must employ two or more landscape improvement or cultural practice (check all that apply)

- ☐ Diversion ditches
- ☐ Terracing
- ☐ Contour buffer strips
- ☐ Cross wind trap strips or herbaceous wind barriers for wind erosion control
- ☐ Windbreaks/shelterbelts for wind erosion control

- ☐ Sediment trap (sediment pond or other sediment trapping structure)
- ☐ Other (please specify):

**Level 3. As per Level 2. Where erosion is present or reported, <u>a total of four or more</u> from Level 2 apply. <u>Two or more</u> of the following are integrated into the production system (check <u>all that apply</u>):**

- ☐ Mulches are used for weed suppression and moisture retention.
- ☐ Organic matter (e.g. manures, composts) is incorporated into container substrate/media.
- ☐ Perennial crops are integrated into the nursery.
- ☐ Containment ponds are utilized and the water reused on site.
- ☐ Runoff from greenhouse structures is collected for reuse.
- ☐ Other (please specify):

**Level 4. As per Level 3, and <u>a total of three or more</u> from Level 3 apply. Signs of erosion (see Level 2) are very minimal or absent. Practices are designed for each field and there is an evaluation of the effectiveness of implemented practices. <u>All</u> of the following apply, where appropriate:**

- ☐ To the greatest extent operationally feasible, greenhouse operation roads are stabilized with gravel, wood chips, or geotextile fabric or vegetative ground cover capable of withstanding nursery machinery.
- ☐ Greenhouse operation property should be regularly inspected following storm events. Evidence of erosion or surface runoff during inspections must be immediately repaired consistent with BMP's and the above standards.

SCORE:

VERIFICATION METHODS/NOTES:

Tillage selection practices and soil compaction prevention for all areas outside greenhouses

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**Level 1. The possible soil-degrading effects of tillage are rarely considered on the greenhouse operation. Tillage operations on bare ground are conducted with minimal concern for soil productivity and compaction.**

**Level 2. The greenhouse operation considers tillage as a tool to be used judiciously. A tillage system that conserves soil (lessens soil erosion and compaction) and/or improves soil health is used on the greenhouse operation (where applicable in a greenhouse setting). <u>Three or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Non-inversion tillage methods are selected that result in crop residue left on the soil surface during critical erosion periods (e.g. conservation tillage).
- ☐ Tillage is restricted to specific portions of fields (e.g. strip tillage).
- ☐ Greenhouse activities that cause soil compaction are not performed when soils are wet.
- ☐ Tracked equipment rather than equipment with wheels are used to avoid destruction of the soil profile.
- ☐ Greenhouse traffic is generally controlled (e.g. use of field borders, tractor paths and lanes within fields for machinery).
- ☐ Greenhouse vehicles are operated with improved load distributions.
- ☐ Precision agricultural-guidance systems are used.
- ☐ Cover crops are planted to improve drainage and increase the tilth of the soil.
- ☐ Long-term crops, like alfalfa, are incorporated into the rotation.
- ☐ Manures or compost are added to soils on a regular basis to improve tilth.

- ☐ Conservation cover (permanent vegetative cover) is planted between rows in scion orchards, and other perennial row crops (e.g. display gardens).
- ☐ Other (please specify):

**Level 3. As per Level 2, and <u>a total of five or more</u> from Level 2 apply (check <u>all that apply</u>). Evidence of success is seen and/or documented through photography, monitoring records, etc. Check <u>all that apply</u>:**

- ☐ Management records show gradual increases in soil organic matter.
- ☐ Greenhouse operation uses equipment designed to reduce soil compaction.
- ☐ Monitoring records show a decrease in soil compaction.
- ☐ Evidence of erosion is minimal or not present.
- ☐ Soil quality indicators are all positive.
- ☐ Soil tilth appears good.
- ☐ Operation deep plows to reduce hardpan and works the ground when soil moisture allows for the least amount of compaction.
- ☐ Tillage or other soil disturbances are scheduled to reduce compaction.
- ☐ Other (please specify):

**Level 4. As per Level 3, and the manager selects production systems based on any of the following (check <u>all that apply</u>):**

- ☐ Greenhouse operation is in the process of or has recently converted acreage to perennial crops.
- ☐ The greenhouse operation is entirely in no-till, direct-seed, or other agricultural production system that uses crop rotations and other strategies to limit inputs.
- ☐ Greenhouse operation evaluates and documents improved efficiency of crop production resulting from adoption of conservation practices.
- ☐ Where drainage problems exist, greenhouse operation uses drain tiles at least 30 feet on-center.

SCORE:

VERIFICATION METHODS/NOTES:

Scorecard for soil and water conservation for all areas outside greenhouses

| | SCORE/LEVEL |
|---|---|
| Continuing education for soil and water conservation | |
| Stream channel protection and restoration | |
| Buffer strips around waterways | |
| Irrigation systems for all areas outside greenhouses | |
| Irrigation water conservation for all areas outside greenhouses | |
| Nutrient management for all areas outside greenhouses | |
| Soil organic matter management for all areas outside greenhouses | |
| Soil erosion prevention for all areas outside greenhouses | |
| Tillage selection practices and soil compaction prevention | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 36 |

| | |
|---|---|
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Operational efficiencies

### Continuing education for operational efficiencies

**Level 1. Manager demonstrates little or no knowledge about recycling/reuse options, energy efficiency, low-impact packaging, or other means for achieving efficiencies and reducing negative social and environmental impacts of the greenhouse operation. Current greenhouse operation reflects this knowledge gap, with no special planning or actions considered to capture efficiencies and reduce negative social and environmental impacts of the greenhouse operation.**

**Level 2. Manager relies on general interest Ag publications (newspapers and general newsletters, etc.) to learn about operational efficiencies. In the course of the discussion, manager demonstrates a basic understanding of the issue area.**

**Level 3. Manager uses technical, subject matter-specific information sources to aid in increasing operational efficiencies. Manager can discuss these issues and communicates technical knowledge of the following specific operational efficiencies issues.**

**Level 4. As per Level 3, and manager participates (or has participated in the last 5 years) in either on-site testing of operational efficiencies strategies to evaluate their usefulness, or, participates in a local or regional water quality council or organization. Manager also documents performance of on-site operational efficiencies practices.**

SCORE:

VERIFICATION METHODS/NOTES:

### Reuse and recycle

**Level 1. Manager neither recycles nor reuses any waste or byproducts from the operation. Managers not informed about the issue.**

**Level 2. Manager communicates some knowledge of recycling or reuse of waste or byproducts from the nursery operation. Manager has a limited plan, or systematic method of recycling or reusing waste or byproducts from the greenhouse operation. <u>Two or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Greenhouse operation recycles all paper products including office paper, refuse from lunch rooms, field trash, old catalogs, stationary, etc.
- ☐ Manager communicates some knowledge of recycling or reuse of waste or byproducts from the nursery operation.
- ☐ Greenhouse operation reuses recycled shredded paper from newsprint industry.

- ☐ Greenhouse operation recycles metals.
- ☐ Other (please specify):

**Level 3. Manager communicates detailed knowledge of some area of recycling or reuse of waste or byproducts from the nursery operation. Greenhouse has a detailed plan or systematic method for recycling or reusing waste or byproducts from part of the nursery operation. <u>Six or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Greenhouse operation composts, recycles and reuses some plant and/or yard debris.
- ☐ Greenhouse operation recycles and reuses some equipment oils.
- ☐ Greenhouse operation recycles and reuses some grain or hay straw after harvest (where applicable for a greenhouse operation).
- ☐ Greenhouse operation recycles and reuses some other local waste or byproducts.
- ☐ Greenhouse operation uses sustainable media amendments that do not include peat moss.
- ☐ Greenhouse operation is committed to reducing greenhouse gas emissions by using renewable energy sources to meet at least 10% of electricity demands or engages in at least a two-year contract for the purchase of at least 35% of electricity from renewable energy sources.
- ☐ Greenhouse operation recycles wood pallets.
- ☐ Greenhouse operation recycles some plastics, (e.g. triple rinsed pesticide containers, poly from greenhouses, used pots, shade cloth, tying tape, grow tubes, tree labels, packaging, banding, etc.).
- ☐ Greenhouse operation recycles some cardboard products.
- ☐ Greenhouse operation recycles some tying twine.
- ☐ Greenhouse operation reuses cedar shavings from cedar shingle industry.
- ☐ Greenhouse operation reuses sawdust from lumber industry.
- ☐ Greenhouse operation reuses or sells some vegetative trimmings.
- ☐ Greenhouse operation cleans up and/or uses any spilled media from the planting and production process.
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of recycling or reuse of most of the waste or byproducts from all parts of the greenhouse operation. Manager has a detailed plan, or systematic method of recycling or reusing most of the waste or byproducts from all parts of the greenhouse operation. <u>Eight or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Greenhouse operation does not recycle or reuse any quarantined plant or yard debris.
- ☐ Greenhouse operation recycles and reuses equipment oils to the fullest extent possible.
- ☐ Greenhouse operation composts, recycles and reuses plant and/or yard debris full extent possible.
- ☐ Greenhouse operation recycles and reuses grain or hay straw after harvest full extent possible.
- ☐ Greenhouse operation recycles and reuses other local waste or byproducts.
- ☐ Greenhouse operation uses sustainable media amendments that do not include peat moss.
- ☐ Greenhouse operation is committed to reducing greenhouse gas emissions by using renewable energy sources to meet at least 10% of electricity demands or engages in at least a two-year contract for the purchase of 35% of electricity from renewable energy sources.
- ☐ Greenhouse operation recycles wood pallets.
- ☐ Greenhouse operation recycles all plastics including triple rinsed pesticide containers, poly from greenhouses, used pots, shade cloth, tying tape, grow tubes, tree labels, packaging, banding, etc.
- ☐ Greenhouse operation recycles all cardboard products.
- ☐ Greenhouse operation recycles all tying twine.
- ☐ Greenhouse operation reuses cedar shavings from cedar shingle industry.
- ☐ Greenhouse operation reuses sawdust from lumber industry.
- ☐ Greenhouse operation reuses or sells 100% of vegetative trimmings.

- ☐ Greenhouse operation conducts a waste audit to identify the weight or volume of on-going consumables and the reuse, recycling, or composting of at least 50% of the on-going consumables waste stream.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Energy efficiency

**Level 1. Manager neither employs nor considers energy efficiency in the greenhouse operation. Managers not informed about the issue. Check <u>all that apply</u>:**

- ☐ Manager has no plan, or systematic method of auditing energy use in the greenhouse operation.
- ☐ Manager communicates no knowledge of energy efficiency in the greenhouse operation.
- ☐ Other (please specify):

**Level 2. Manager communicates some knowledge of energy efficiency in the greenhouse operation. Manager has a limited plan, or systematic method of energy efficiency auditing in the greenhouse operation.**

**Level 3. Manager communicates detailed knowledge of some area of energy efficiency in the greenhouse operation. Manager has a detailed plan, or systematic method of energy efficiency auditing in part of the greenhouse operation. <u>Four or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Greenhouse operation demonstrates that the energy use during the three most recent years is at least 10% less than the average energy use over the previous ten years.
- ☐ Greenhouse operation partners with an energy efficiency alliance or similar organization to prioritize efforts for resource management.
- ☐ Greenhouse operation uses high efficiency measures when operating its equipment.
- ☐ Greenhouse operation uses occupancy sensors, LEDs, fluorescent, metal halide or other energy efficient lighting and audits their use.
- ☐ Greenhouse operation uses variable frequency drive pumps and controls, and variable speed pumps for irrigation.
- ☐ Greenhouse operation uses drip irrigation and/or high efficiency sprinklers, nozzles and emitters for irrigation.
- ☐ Greenhouse operation captures and reuses rainwater runoff from roofs and parking lots.
- ☐ Greenhouse operation uses high efficiency heating, air conditioning and ventilation systems in its offices, greenhouses and warehouses (see details below).
- ☐ Greenhouse operation uses high efficiency insulation in its offices, greenhouses (double poly) and warehouses including thermal curtains where appropriate.
- ☐ Greenhouse operation utilizes best management practices for compliance with the Climate Friendly Nurseries Project (CFNP).[7]
- ☐ Greenhouses use scheduling of plants to meet target market to reduce total energy costs of production.
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of energy efficiency auditing in all parts of the greenhouse operation. Manager has a detailed plan, or systematic method of energy efficiency**

**auditing in all parts of the greenhouse operation, with a specific timeline for implementation. <u>Five or more</u> of the following apply (check <u>all that apply</u>):**

- ☐ Greenhouse operation demonstrates that the energy use during the three most recent years is at least 25% less than the average energy use over the previous ten years.
- ☐ Greenhouse operation partners with an energy efficiency alliance or similar organization to prioritize efforts for resource management.
- ☐ Greenhouse operation uses occupancy sensors, LEDs, fluorescent, metal halide or other energy efficient lighting, and audits their use.
- ☐ Greenhouse operation uses variable frequency drive pumps and controls and variable speed pumps for irrigation.
- ☐ Greenhouse operation uses drip irrigation and/or high efficiency sprinklers, nozzles and emitters for irrigation.
- ☐ Greenhouse operation captures and reuses rainwater runoff from roofs and parking lots.
- ☐ Greenhouse operation uses high efficiency heating, air conditioning and ventilation systems in its offices, greenhouses and warehouses (see details below).
- ☐ Greenhouse operation uses cogeneration systems to generate at least 50% of energy used.
- ☐ Greenhouse operation uses fuel cells.
- ☐ Greenhouse operation uses solar panels.
- ☐ Greenhouse operation uses geothermal energy.
- ☐ Greenhouse operation uses a log-fuel generator.
- ☐ Greenhouse operation uses a pellet fuel generator.
- ☐ Greenhouse operation uses a clean coal generator.
- ☐ Greenhouse operation uses a hot water or a steam generator for energy.
- ☐ Greenhouse operation uses steam for heat delivery.
- ☐ Greenhouse operation uses steam for sterilization of containers and media.
- ☐ Greenhouse operation uses biodegradable paint on shade products.
- ☐ Greenhouse operation uses biodegradable, reusable, woven shade fabric wave length colored for light conservation.
- ☐ Greenhouse operation uses high efficiency ventilation equipment for air movement (i.e. vented roofs, forced air tubes or fan jets, motorized side panels, pad and fan systems, horizontal circulation fan units, etc.).
- ☐ Greenhouse operation uses high efficiency insulation in its offices, greenhouses (e.g., high R value hard-walled acrylic, double poly) and warehouses including thermal curtains where appropriate.
- ☐ Greenhouse operation uses under bench heat curtains or skirting.
- ☐ Greenhouse operation uses bicycles, 4-wheelers, Segways™, motorized carts or other means of conveyances for employees around the operation.
- ☐ Greenhouse operation uses conveyors, carousels or other means of mechanical movers for moving plant materials around the greenhouse operation.
- ☐ Greenhouse operation uses rolling benches, stack benches or other mechanical means for moving what would otherwise be fixed structures to lessen employee-related repetitive movement injuries.
- ☐ Greenhouse operation uses low stress chairs with proper back, seat, arm and leg support (i.e. tissue culture lab).
- ☐ Greenhouse operation utilizes best management practices for compliance with the Climate Friendly Nurseries Project (CFNP).
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Low-impact packaging

**Level 1. Manager neither employs nor considers low-impact packaging in the greenhouse operation. Managers not informed about the issue. Check all that apply:**

- ☐ Manager has no plan, or systematic method of employing the use of low-impact packaging in the greenhouse operation.
- ☐ Manager communicates no knowledge of the use of low-impact packaging in the greenhouse operation.
- ☐ Other (please specify):

**Level 2. Manager communicates some knowledge of the use of low-impact packaging in the greenhouse operation. All of the following apply:**

- ☐ Manager has a limited plan, or systematic method of using low-impact packaging in the greenhouse operation.
- ☐ Manager communicates some knowledge of how to employ or use low-impact packaging in the greenhouse operation.
- ☐ Other (please specify):

**Level 3. Manager communicates detailed knowledge of some area of use of low-impact packaging in the greenhouse operation. Two or more of the following apply (check all that apply):**

- ☐ Manager has a detailed plan for using low-impact packaging in part of the greenhouse operation.
- ☐ Nursery sources materials from suppliers that use low-impact packaging.
- ☐ Nursery sources materials in bulk or otherwise to reduce packaging of sourced materials.
- ☐ Manager has a systematic method for using low-impact packaging in part of the greenhouse operation.
- ☐ Manager communicates detailed knowledge of using low-impact packaging in some parts of the greenhouse operation.
- ☐ Greenhouse operation uses biodegradable plastic containers or directly plantable pots.
- ☐ Greenhouse operation uses containers made with recycled plastic.
- ☐ Greenhouse operation uses containers made with feather waste byproducts.
- ☐ Greenhouse operation uses roller containers for green roof applications.
- ☐ Greenhouse operation uses containers made with recycled paper pulp byproducts.
- ☐ Greenhouse operation demonstrates that the use of low-impact packaging during the three most recent years is at least 25% more than the use of conventional packaging over the previous ten years.
- ☐ Other (please specify):

**Level 4. Manager communicates detailed knowledge of all area of use of low-impact packaging in the greenhouse operation. A total of three or more from level 3 apply. Four or more of the following apply (check all that apply):**

- ☐ Manager has a detailed plan for using low-impact packaging in all parts of the greenhouse operation and can demonstrate implementation of that plan.
- ☐ Manager has a systematic method of using low-impact packaging in all parts of the greenhouse operation and can demonstrate implementation of that method.
- ☐ Manager communicates detailed knowledge of using low-impact packaging in all parts of the greenhouse operation.
- ☐ Greenhouse operation demonstrates their willingness to reduce the amount of conventionally packaged products used in their daily operation.

- ☐ Greenhouse operation demonstrates a reliable method of monitoring their use of conventionally packaged products.
- ☐ Greenhouse operation demonstrates a method to minimize waste streams while maximizing the reuse and recycling of materials in their daily operation.
- ☐ Other (please specify):

SCORE:

VERIFICATION METHODS/NOTES:

## Scorecard for operational efficiencies

| | SCORE/LEVEL |
|---|---|
| Continuing education for operational efficiencies | |
| Reuse and recycle | |
| Energy efficiency | |
| Low-impact packaging | |
| | |
| (1) TOTAL POINTS EARNED = | |
| | |
| Total Points Available | 16 |
| - Minus Total Points Not Applicable | |
| (2) TOTAL APPLICABLE POINTS | |
| | |
| (3) AVERAGE PERCENTAGE SCORE = [(1) / (2)] * 100 | % |

## Fixed Criteria

### No GMO seeds or plant materials are used

**Check the following as applicable:**

- ☐ No GMO seeds or plant materials are produced on the nursery.
- ☐ GMO seeds and/or plant materials are produced on the nursery.

**Check the verification method used:**

- ☐ Records show the plant varieties grown. All are non-GMO varieties.
- ☐ There are currently no GMO varieties for the crops grown.
- ☐ Other (please specify):

NOTES:

### No prohibited pesticides used

**Food Alliance Prohibited Pesticide List**

The Food Alliance Prohibited Pesticide List (PPL) is based on the WHO Recommended Classification of Pesticides by Hazard (2009). The PPL consists of materials classified as extremely hazardous or highly hazardous on the WHO list that are registered for use by the USEPA. Exceptions will allowed if the use of a material on the PPL is required by law or by required for export. The PPL is in Appendix 1, at the end of the evaluation materials.

**Check the following as applicable:**

- ☐ Pesticide records indicate that none of the pesticides listed in the Reducing Pesticide Usage section certification criteria are used on this nursery operation.
- ☐ Other (please specify):

**Check the verification method used:**

- ☐ Visual inspection of hazardous material storage confirms no presence of prohibited pesticides.
- ☐ Other (please specify):

NOTES:

### Continual Improvement

**Check the following for renewing applications only (as applicable):**

- ☐ 1-year improvement goal from previous application met.
- ☐ 3-year improvement goal from previous application met.
- ☐ 5-year improvement goal from previous application met.

# Appendix 1: Food Alliance Prohibited Pesticide List

Class Ia and Ib pesticides registered for use by the USEPA (See: The WHO recommended classification of pesticides by hazard and guidelines to classification: 2009.) ©Food Alliance 2011

| EPA Reg No. | Product Name | WHO Mixture Classification | Chemical Name |
|---|---|---|---|
| 5481-448 | AMVAC BIDRIN 8 WATER MISCIBLE INSECTICIDE | Ib | Dicrotophos |
| 10163-95 | AZINPHOS METHYL TECHNICAL | Ib | Azinphos-methyl |
| 66330-233 | AZINPHOSMETHYL 50W | Ib | Azinphos-methyl |
| 5481-9032 | AZTEC 3.78% GRANULAR INSECTICIDE | Ib | Phostebupirim |
| 5481-9028 | AZTEC 4.67% GRANULAR | Ib | Phostebupirim |
| 5481-552 | BIDRIN XP | Ib | Dicrotophos |
| 100-987 | BRODIFACOUM TECHNICAL | Ia | Brodifacoum |
| 270-371 | BROMADIOLONE 2.5% CONCENTRATE | Ib | Bromadiolone |
| 270-374 | BROMADIOLONE TECHNICAL | Ia | Bromadiolone |
| 47629-9 | BROMETHALIN TECHNICAL | Ia | Bromethalin |
| 279-3060 | CARBOFURAN TECHNICAL | Ib | Carbofuran |
| 67760-43 | CHEMINOVA METHYL PARATHION 4 EC | Ib | Methyl parathion |
| 4787-33 | CHEMINOVA METHYL PARATHION TECHNICAL | Ib | Methyl parathion |
| 34704-259 | CLEAN CROP PHORATE 20G | Ib | Phorate |
| 13808-7 | COMPOUND 1080 LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 56228-26 | COMPOUND 1080 TECHNICAL (LPC) | Ia | 1080 |
| 47000-144 | CO-RAL COUMAPHOS 25% DUST BASE | Ib | Coumaphos |
| 11556-98 | CO-RAL COUMAPHOS FLOWABLE INSECTICIDE | Ib | Coumaphos |
| 11556-123 | CO-RAL PLUS INSECTICIDE CATTLE EAR TAG | Ib | Coumaphos |
| 11556-148 | CORATHON | Ib | Coumaphos |
| 11678-53 | COTNION-METHYL | Ib | Azinphos-methyl |
| 66222-11 | COTNION-METHYL AZINPHOS METHYL 50W | Ib | Azinphos-methyl |
| 11556-11 | COUMAPHOS TECHNICAL | Ib | Coumaphos |
| 5481-545 | COUNTER 15G SYSTEMIC INSECTICIDE-NEMATICIDE | Ib | Terbufos |
| 5481-562 | COUNTER 20G | Ib | Terbufos |
| 5481-547 | COUNTER CR | Ib | Terbufos |
| 5481-546 | COUNTER TECHNICAL POISON SOIL INSECTICIDE | Ia | Terbufos |
| 5481-447 | DICROTOPHOS TECHNICAL | Ib | Dicrotophos |
| 47629-12 | DIFENACOUM TECHNICAL | Ia | Difenacoum |
| 7173-204 | DIFETHIALONE TECHNICAL | Ia | Difethialone |
| 61282-5 | DIPHACINONE, TECHNICAL GRADE FOR MANUFACTURING ONLY | Ia | Diphacinone |
| 352-361 | DU PONT METHOMYL COMPOSITION | Ib | Methomyl |
| 5481-492 | DUPONT FORTRESS TECHNICAL | Ia | Chlorethoxyphos |
| 352-342 | DUPONT LANNATE SP INSECTICIDE | Ib | Methomyl |
| 352-366 | DUPONT METHOMYL TECHNICAL | Ib | Methomyl |
| 352-400 | DUPONT OXAMYL TECHNICAL 42 INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 5481-9043 | ETHOPROP TECHNICAL | Ib | Ethoprop |
| 5481-493 | FORTRESS 5G GRANULAR INSECTICIDE | Ib | Chlorethoxyphos |

| | | | |
|---|---|---|---|
| 279-2876 | FURADAN 4F INSECTICIDE/NEMATICIDE | Ib | Carbofuran |
| 279-3038 | FURADAN 85 DB | Ib | Carbofuran |
| 279-3310 | FURADAN LFR INSECTICIDE/NEMATICIDE | Ib | Carbofuran |
| 10163-78 | GOWAN AZINPHOS-M 50 WSB | Ib | Azinphos-methyl |
| 66222-162 | GUTHION SOLUPAK 50% WETTABLE POWDER INSECTICIDE | Ib | Azinphos-methyl |
| 11678-70 | GUTHION TECHNICAL INSECTICIDE | Ib | Azinphos-methyl |
| 61282-38 | HOPKINS COV-R-TOX ENCAPSULATED WARFARIN - 50% TECHNICAL | Ib | Warfarin |
| 61282-39 | HOPKINS WARFARIN TECHNICAL RODENTICIDE | Ib | Warfarin |
| 13808-8 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 33858-2 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 35975-2 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 35978-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 39260-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 39508-1 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 56228-15 | M-44 CYANIDE CAPSULES | Ib | Sodium cyanide |
| 56228-32 | M-44 CYANIDE CAPSULES ARCTIC FOX | Ib | Sodium cyanide |
| 10707-10 | MAGNACIDE B MICROBIOCIDE | Ib | Acrolein |
| 10707-9 | MAGNACIDE H HERBICIDE | Ib | Acrolein |
| 7173-174 | MAKI TECHNICAL | Ia | Bromadiolone |
| 7946-11 | MAUGET INJECT-A-CIDE B | Ib | Dicrotophos |
| 10163-252 | MESUROL 75 WDG | Ib | Methiocarb |
| 10163-229 | MESUROL 75% CONCENTRATE | Ib | Methiocarb |
| 56228-33 | MESUROL 75% WETTABLE POWDER AVERSIVE CONDITIONING EGG TREATMENT | Ib | Methiocarb |
| 10163-231 | MESUROL 75-W | Ib | Methiocarb |
| 10163-230 | MESUROL TECHNICAL INSECTICIDE | Ib | Methiocarb |
| 100-530 | METHIDATHION TECHNICAL | Ib | Methidathion |
| 10163-245 | METHIDATHION TECHNICAL | Ib | Methidathion |
| 5481-9041 | MOCAP EC NEMATICIDE - INSECTICIDE | Ib | Ethoprop |
| 279-2862 | NIAGARA FURADAN 75 BASE | Ib | Carbofuran |
| 5481-8980 | PHORATE 20 G | Ib | Phorate |
| 9779-293 | PHORATE 20-G | Ib | Phorate |
| 5481-8979 | PHORATE TECHNICAL INSECTICIDE | Ia | Phorate |
| 83100-28 | ROTAM METHOMYL 90SP INSECTICIDE | Ib | Methomyl |
| 81598-9 | ROTAM METHOMYL TECHNICAL | Ib | Methomyl |
| 7173-75 | ROZOL RODENTICIDE TECHNICAL POWDER | Ia | Chlorophacinone |
| 72500-15 | SLN PHARMACHEM WARFARIN | Ib | Warfarin |
| 5481-561 | SMARTCHOICE 5G | Ib | Chlorethoxyphos |
| 35975-4 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 35978-8 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 39508-2 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 46779-1 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |
| 56228-22 | SODIUM FLUOROACETATE (COMPOUND 1080) LIVESTOCK PROTECTION COLLAR | Ib | 1080 |

| | | | |
|---|---|---|---|
| 36029-14 | STRYCHNINE ALKALOID N.F. | Ib | Strychnine |
| 27995-1 | STRYCHNINE ALKALOID N.F. POWDER | Ib | Strychnine |
| 37259-1 | STRYCHNINE ALKALOID NFX | Ib | Strychnine |
| 5481-9031 | TEBUPIRIMPHOS TECHNICAL | Ia | Phostebupirim |
| 12455-88 | TECHNICAL BRODIFACOUM | Ia | Brodifacoum |
| 12455-70 | TECHNICAL BROMADIOLONE | Ia | Bromadiolone |
| 12455-92 | TECHNICAL BROMETHALIN | Ia | Bromethalin |
| 12455-25 | TECHNICAL DIPHACINONE | Ia | Diphacinone |
| 61282-1 | TECHNICAL DIPHACINONE | Ia | Diphacinone |
| 12455-26 | TECHNICAL WARFARIN | Ib | Warfarin |
| 100-1015 | TEFLUTHRIN TECHNICAL | Ib | Tefluthrin |
| 264-330 | TEMIK BRAND 15G ALDICARB PESTICIDE | Ib | Aldicarb |
| 5481-526 | THIMET 10-G SOIL AND SYSTEMIC INSECTICIDE | Ib | Phorate |
| 5481-527 | THIMET 15-G SOIL AND SYSTEMIC INSECTICIDE | Ib | Phorate |
| 5481-530 | THIMET 20-G | Ib | Phorate |
| 5481-528 | THIMET MC - 85 FOR MANUFACTURING PURPOSES ONLY | Ia | Phorate |
| 5481-529 | THIMET TECHNICAL FOR MANUFACTURING PURPOSES ONLY | Ia | Phorate |
| 352-532 | VYDATE C-LV INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 352-372 | VYDATE L INSECTICIDE/NEMATICIDE | Ib | Oxamyl |
| 69826-1 | WARFARIN TECHNICAL | Ib | Warfarin |
| 3282-32 | WINCON WARFARIN TECHNICAL | Ib | Warfarin |
| 61282-3 | ZINC PHOSPHIDE 93 | Ib | Zinc phosphide |

NOTE: WHO classification is based on acute risks to human health. Class Ia = extremely hazardous, Class Ib = highly hazardous.

# Appendix 2: Check list for combined Food Alliance and Salmon Safe Certification of Nursery and Greenhouse Operations

I. For each production system, the following boxes must ALL BE CHECKED in order for the applicant to claim Salmon Safe certification, to make Salmon Safe-related marketing claims or to use any Salmon Safe promotional materials, such as seals, etc. If the operation does not use a particular production system, mark that system NA.

A. **Field Production**

Standard Area: **Soil and water conservation**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- ☐ As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- ☐ Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

- ☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

- ☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

B. **Container Production**

Standard Area: **Soil and water conservation for all areas**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways.

**C. Greenhouse Production**

Standard Area: **Soil and water conservation for inside greenhouses**

Evaluation Criteria: **Irrigation water conservation**

☐ Greenhouse works on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Standard Area: **Soil and water conservation for all areas outside greenhouses**

Evaluation Criteria: **Stream channel protection and restoration**

☐ Stream crossings avoid filling, excavating, or straightening stream channels.

☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate

☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.

☐ Unnecessary removal of woody debris is avoided.

☐ Disconnection of off-channel wetlands and ponds is avoided.

☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.

☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

☐ As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.

☐ Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

## II. Salmon Safe HIGH HAZARD PESTICIDE LIST

Certain pesticides are a serious threat to salmon and other aquatic life. In addition to killing fish, these pesticides at sub-lethal concentrations can stress juveniles, alter swimming ability, interrupt schooling behaviors, cause salmon to seek sub-optimal water temperatures, inhibit seaward migration and delay spawning. All of these behavioral changes ultimately affect survival rates.

The following table (next page) lists many of the pesticides known to cause problems for salmon and other fish. The list includes chemicals that could be used in nursery and greenhouse applications that are listed with the EPA in various risk categories. Use this chart to help identify pesticides that require

special consideration. Please note that this chart lists only some of the currently available pesticides in common usage.

A nursery using any of the pesticides indicated as "High Hazard" below may be certified only if Salmon-Safe's variance request form is submitted *in advance* demonstrating a clear need for use of the pesticide, that no safer alternatives exist, that the method of application (such as timing, location, and amount used) represents a negligible risk to water quality and fish habitat, *and* that the landowner has consulted with university extension or comparable technical expert.

## Salmon Safe "HIGH HAZARDOUS" Agricultural Pesticides

1,3-dichloropropene
2,4-D
Abamectin
Acephate
Altacor
Atrazine
Azinphos-Methyl
Bensulide
Bentazon
Bifenazate
Bifenthrin
Bromoxynil
Carbaryl
Carbofuran
Carboximide
Carboxin
Carfentrazone-ethyl
Chlorothalonil
Chlorpyrifos
Copper Sulfate*
Coumaphos
Cyhalothrin
Cypermethrin
Diazinon
Dicamba
Dichlobenil
Diclofop-methyl
Diflubenzuron
Dimethoate
Dimethylformamide
Disulfoton
Dithane
Diuron
Dodine P
Emamectin Benzoate
Esfenvalerate
Ethoprop
Extoxazole Technical
Fenamiphos
Fenbutatin-Oxide
Fenpropathrin P
Fenpyroximate
Flumioxazin P
Hexythiazox P
Imidacloprid
Iprodione
Linuron
Malathion
Mancozeb/Penncozeb
Methamidophos
Methidathion
Methomyl
Methyl Parathion
Metolachlor
Metribuzin
Molinate
Nale
Norflurazon
Oryzalin
Oxyfluorfen
Paraquat Dichloride
Parathion
Pebulate
Pendimethalin
Permethrin
Phorate
Phosmet
Prometryn
Propargite
Propiconazole
Pyriproxyfen P
Rimon
Quintozene
Rimon
Simazine
Spirodiclofen
Tebuthiuron
Terbacil
Terbufos
Thiacloprid
Thiocarbamate
Thiophanate-methyl P
Thiram
Triclopyr
Trifluralin

*Salmon-Safe restrictions apply to any copper-containing pesticide including copper hydroxide, copper ammonium hydroxide, copper carbonate, and copper oxide, and others.

**P:** Pending Review. This list is based on EPA hazard level for fish and fish habitat. It is revised by Salmon Safe as pesticide registrations are updated and as more environmental data becomes available

*Salmon-Safe restrictions apply to any copper-containing pesticide including copper hydroxide, copper ammonium hydroxide, copper carbonate, and copper oxide, and others.

**P:** Pending Review. This list is based on EPA hazard level for fish and fish habitat. It is revised as pesticide registrations are updated and as more environmental data becomes available

## End Notes

[1] This criterion should allow for flexibility in record keeping with larger vs. smaller greenhouse operations. Greenhouse managers or tenant growers need to have written documentation. Satisfactory progress should be made to address greenhouse operation features and facilities that may degrade salmon habitat such as irrigation ponds, road crossings, or concrete-lined streams. These restoration efforts may include those required by the evaluation team to address deficiencies, and efforts already being undertaken by greenhouse management. This progress may include prioritized project lists for the greenhouse operation, plans for specific projects, or other requirements determined by the review team. There is demonstrated progress in correcting management deficiencies.

[2] Pesticide records are a key element of the inspection process and are the only way inspectors can verify activities in the past.

[3] USDA requires, and states enforce, the following records for all applications of restricted use pesticides: name of applicator, date, field location or area, area treated, pesticide name and EPA registration number, total amount applied, and crop.

[4] Properly managed, flood irrigation can be managed in perennial systems to increase overall greenhouse operation productivity, without causing erosion (in or below the site) and to maintain good litter distribution (where applicable in a greenhouse setting).

[5] Includes roll out areas, parking lots, landscaped areas, media storage areas, roads, walkways, non-nursery production areas (e.g. food or forage crops), etc. Any field or container plant production should be evaluated using the appropriate inspection tools.

[6] Properly managed, flood irrigation can be managed in perennial systems to increase overall greenhouse operation productivity, without causing erosion (in or below the site) and to maintain good litter distribution (where applicable in a greenhouse setting).

[5] Several states and provinces in the United States and Canada as well as Australia, The United Kingdom and others have published Best Management Practices (BMP's) standards for greenhouse production.

[6] For greenhouse operations with a choice of irrigation water sources, the selected source of irrigation water results in the least potential impact to in-stream flows of fish-bearing streams, both on greenhouse property and downstream from it. Fish losses must be avoided by installing fish screens on diversions in accordance with the State Department of Fish and Wildlife, or other similar guidance requirements specific to the greenhouse operation's geographic location

[7] For more information see:
http://www.climatefriendlynurseries.org/resources/best_management_practices_for_climate_friendly_nurseries.pdf

## V. Check list for combined Food Alliance and Salmon Safe Certification Nursery and Greenhouse

I. For each production system, the following boxes must ALL BE CHECKED in order for the applicant to claim Salmon Safe certification, to make Salmon Safe-related marketing claims or to use any Salmon Safe promotional materials, such as seals, etc. If the operation does not use a particular production system, mark that system NA.

A. **Field Production**

Standard Area: **Soil and water conservation**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- ☐ As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- ☐ Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

- ☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

- ☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

B. **Container Production**

Standard Area: **Soil and water conservation for all areas**

Evaluation Criteria: **Stream channel protection and restoration**

- ☐ Stream crossings avoid filling, excavating, or straightening stream channels.
- ☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate
- ☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.
- ☐ Unnecessary removal of woody debris is avoided.
- ☐ Disconnection of off-channel wetlands and ponds is avoided.
- ☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.
- ☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Irrigation water conservation**

☐ Nursery work on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways.

**C. Greenhouse Production**

Standard Area: **Soil and water conservation for inside greenhouses**

Evaluation Criteria: **Irrigation water conservation**

☐ Greenhouse works on diversions, including installing and servicing pumps and intakes, occurs only when salmon are not present in streams, during approved in-stream work periods, and in accordance with state and local regulations and permits.

Standard Area: **Soil and water conservation for all areas outside greenhouses**

Evaluation Criteria: **Stream channel protection and restoration**

☐ Stream crossings avoid filling, excavating, or straightening stream channels.

☐ New stream crossings are designed to avoid impacts to in-stream habitat and allow for fish passage where appropriate

☐ New stream crossings are designed to avoid constriction of floodwater conveyance during 25-year, 24-hour storm events.

☐ Unnecessary removal of woody debris is avoided.

☐ Disconnection of off-channel wetlands and ponds is avoided.

☐ Where anadromous fish are present, irrigation diversion structures on the operation are designed to allow adult and juvenile fish passage and do not trap fish.

☐ Existing channels are protected from new impacts such as filling and excavation, straightening, unnecessary stream crossings, excessive stormwater runoff from nursery operations or disturbed areas.

Evaluation Criteria: **Buffer strips around waterways (natural and constructed)**

- As the slope of the adjoining field increases, the width of the riparian buffer zone is increased to adequately protect the riparian area from erosion and run-off.
- Riparian buffer zones are sufficiently vegetated to prevent the movement of agricultural chemicals, organics, nutrients and sediment from adjoining fields into surface waters.

Evaluation Criteria: **Soil erosion prevention**

☐ Signs of soil erosion are minimal or absent, and there is no evidence of sediment transport to downstream waterways

## II. Salmon Safe HIGH HAZARD PESTICIDE LIST

Certain pesticides are a serious threat to salmon and other aquatic life. In addition to killing fish, these pesticides at sub-lethal concentrations can stress juveniles, alter swimming ability, interrupt schooling behaviors, cause salmon to seek sub-optimal water temperatures, inhibit seaward migration and delay spawning. All of these behavioral changes ultimately affect survival rates.

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special consideration. Please note that this chart lists only some of the currently available pesticides in common usage.

A nursery using any of the pesticides indicated as "High Hazard" below may be certified only if Salmon-Safe's variance request form is submitted *in advance* demonstrating a clear need for use of the pesticide, that no safer alternatives exist, that the method of application (such as timing, location, and amount used) represents a negligible risk to water quality and fish habitat, *and* that the landowner has consulted with university extension or comparable technical expert.

## Salmon Safe "HIGH HAZARDOUS" Agricultural Pesticides

1,3-dichloropropene
2,4-D
Abamectin
Acephate
Altacor
Atrazine
Azinphos-Methyl
Bensulide
Bentazon
Bifenazate
Bifenthrin
Bromoxynil
Carbaryl
Carbofuran
Carboximide
Carboxin
Carfentrazone-ethyl
Chlorothalonil
Chlorpyrifos
Copper Sulfate*
Coumaphos
Cyhalothrin
Cypermethrin
Diazinon
Dicamba
Dichlobenil
Diclofop-methyl
Diflubenzuron
Dimethoate
Dimethylformamide
Disulfoton
Dithane
Diuron
Dodine [P]
Emamectin Benzoate
Esfenvalerate
Ethoprop
Extoxazole Technical
Fenamiphos
Fenbutatin-Oxide
Fenpropathrin [P]
Fenpyroximate
Flumioxazin [P]
Hexythiazox [P]
Imidacloprid
Iprodione
Linuron
Malathion
Mancozeb/Penncoze
b
Methamidophos
Methidathion
Methomyl
Methyl Parathion
Metolachlor
Metribuzin
Molinate
Nale
Norflurazon
Oryzalin
Oxyfluorfen
Paraquat Dichloride
Parathion
Pebulate
Pendimethalin
Permethrin
Phorate
Phosmet
Prometryn
Propargite
Propiconazole
Pyriproxyfen [P]
Rimon
Quintozene
Rimon
Simazine
Spirodiclofen
Tebuthiuron
Terbacil
Terbufos
Thiacloprid
Thiocarbamate
Thiophanate-methyl [P]
Thiram
Triclopyr
Trifluralin

*Salmon-Safe restrictions apply to any copper-containing pesticide including copper hydroxide, copper ammonium hydroxide, copper carbonate, and copper oxide, and others.

**P:** Pending Review. This list is based on EPA hazard level for fish and fish habitat. It is revised as pesticide registrations are updated and as more environmental data becomes available

## VI. Summary Scorecard for Nursery and Greenhouse Production (field, container, and greenhouse operations)

Name of Operation:

---

Date of Inspection:

---

Site Inspector:

---

**Scorecard for plant production: safe and fair working conditions:** Score: _____

**Scorecard for plant production: wildlife habitat and biodiversity conservation** Score: _____

**Summary scorecard for plant production: field production, including fixed criteria**

| | |
|---|---|
| Integrated pest, disease and weed management | Score: _____ |
| Soil and water conservation | Score: _____ |
| Operational efficiencies | Score: _____ |
| No GMO seeds used | ☐ ✓ OK? |
| No prohibited pesticides used | ☐ ✓ OK? |
| Continual improvement (re-applicants ONLY) | ☐ ✓ OK? |

**Summary of scores for plant production: container production, including fixed criteria**

| | |
|---|---|
| Integrated pest, disease and weed management | Score: _____ |
| Soil and water conservation for all areas | Score: _____ |
| Soil and water conservation for non-production areas | Score: _____ |
| Operational efficiencies | Score: _____ |
| No GMO seeds used | ☐ ✓ OK? |
| No prohibited pesticides used | ☐ ✓ OK? |
| Continual improvement (re-applicants ONLY) | ☐ ✓ OK? |

**Summary of scores for greenhouse nursery plant production, including fixed criteria**

| | |
|---|---|
| Integrated pest, disease and weed management | Score: _____ |
| Soil and water conservation for all areas | Score: _____ |
| Soil and water conservation for non-production areas | Score: _____ |
| Operational efficiencies | Score: _____ |
| No GMO seeds used | ☐ ✓ OK? |
| No prohibited pesticides used | ☐ ✓ OK? |
| Continual improvement (re-applicants ONLY) | ☐ ✓ OK? |

**Salmon Safe checklist (for those operations seeking combined Food Alliance and Salmon Safe Certification** ☐ ✓ OK?

## VII. Acknowledgements

The FA Sustainability Standard for Nursery and Greenhouse Production and related evaluation criteria were developed in collaboration with Don Richards, Applied Horticultural Consultants (appliedhortconsulting.com).

The following individuals reviewed and provided comment on the evaluation criteria**:

James Altland, Research Horticulturist, Application Technology Research Unit, USDA-ARS

Sam Doane, Production Horticulturist, J. Frank Schmidt and Son, Co.

Allan Elliott, Operations Manager, Carlton Plants, LLC.

Jonathan Frantz, Research Horticulturist, Application Technology Research Unit, USDA-ARS

Kate Knox, Salmon Safe

John Lea-Cox, Professor and University Research and Extension Specialist, Plant Science and Landscape Architecture, College of Agriculture and Natural Resources, University of Maryland

John Majsztrik, University of Maryland

Robin Rosetta, Associate Professor, North Willamette Research and Extension Center, Oregon State University

Walter Suttle, Technical Services Manager, Monrovia Nursery

Sarah White, Assistant Professor, Nursery Extension Specialist, School of Agricultural, Forest and Environmental Sciences, Clemson University

** Not all reviewer comments and suggestions were incorporated in the final draft of our evaluation criteria, so recognition of their contribution does not constitute an endorsement.

The following organizations contributed funds to the development of the program: Meyer Memorial Trust, Bullitt Foundation, Oregon Department of Agriculture Specialty Crop Grant Program, Salmon Safe.

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Nursery Field Workshop 2012

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- *New Certification*: Oregon Nursery Recognized for Sustainability Practices
- Green City Market's certification policy clears consumer confusion (Chicago Sun Times)
- The Short Guide to MPS, Veriflora & Food Alliance Labels (Grower Talks)
- New Sustainability Tools for Growers Debut (Greenhouse Product News)
- August Newsletter: Nursery & Greenhouse News, Chicago Green City Market, Chipotle Mexican Grill, In Memoriam: Shon Seeley

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# Nursery Field Workshop 2012

## Sustainability Workshop and Mock Inspection: The FA Sustainability Standard for Nursery and Greenhouse Operations

- Are you looking for tools to assess sustainability at your nursery and guide cost-saving improvements?
- Are you considering sustainability certification to enhance your marketing and want to understand the inspection process?

Join Food Alliance and Oregon State University for a free workshop on the new FA Sustainability Standard for Nursery and Greenhouse Operations. Workshop participants will gain a clear understanding of FA sustainability evaluation tools, certification requirements and how performance is assessed in an inspection process.

**WHEN**: Tuesday, September 18, 2012, 8:00 AM - 12:00 noon

**WHERE**: North Willamette Research and Extension Center (NWREC), Aurora, Oregon

The workshop will begin with an introduction to the standard, evaluation tools and the certification process for Food Alliance and Salmon Safe certification. Complimentary breakfast will be provided.

Following breakfast, participants will walk NWREC's operation with OSU professor Robin Rosetta and Food Alliance inspector Jim Snyder, who will explain the evaluation tools and key points of the certification inspection process.

Food Alliance and Salmon Safe staff will join for a Q&A session.

**PRE-REGISTRATION REQUIRED.**
Free to attend. Limited to 20 participants.

**To register contact:**
Roberta Anderson
Roberta@foodalliance.org
503-493-1066 x31

*Funds provided by the Oregon Department of Agriculture and the Nike Employee Grant Fund of The Oregon Community Foundation.*

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FA Standards
FA Certification
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1829 NE Alberta, Suite 5
Portland, OR 97211
503.493.1066 : Fax 503.493.1069
info@foodalliance.org

FOOD ALLIANCE

SUPPORTING SUSTAINABILITY IN FOOD AND AGRICULTURE

# Sustainability Standard for Nursery and Greenhouse Production

## Addresses the following areas of social and environmental concerns:

- soil and water conservation
- wildlife habitat and biodiversity conservation
- integrated pest, disease, and weed management
- safe and fair working conditions
- operational efficiencies (energy use, recycling, etc.)

## Applies to field, container, and greenhouse operations producing:

- woody ornamentals
- annuals
- perennials
- foliage plants
- potted flowering plants
- cut flowers

## Certification adds credibility to marketing claims through independent verification to meaningful standards.

SALMON SAFE

FOOD ALLIANCE CERTIFIED

## Certification is best suited for nurseries and greenhouses that:

- manage operations with environmental and community impacts in mind,
- are commited to continually striving to innovate and do better,
- differentiate their operation and products with sustainability claims,
- have customers interested in sustainability or seeking evidence of supplier sustainability efforts.

**FoodAlliance.org/nursery**

# ODA-S15 Grower's Seek to Directly Foster Retail Interest in Organic Specialty Potatoes

*Attachments: Recipe cards and Posters*

KLAMATH BASIN FRESH DIRECT

# Premium Organic Potatoes

## Klamath Pearl

## Purple Fiesta

## Multicolor Medley

## Ruby Crescent

## French Fingerling

USDA ORGANIC

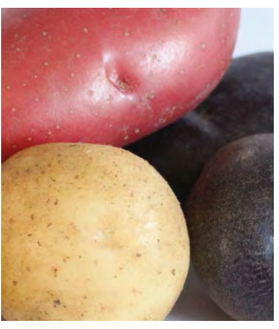
## Russian Banana

## Fingerling Medley

## From Our Family Farm To Your Family's Table

| 20 mins | 20 mins | 30 mins | 25 mins | 30 mins |
|---|---|---|---|---|
| Boil | Bake | Grill | Fry | Roast |

POTATOES GOODNESS UNEARTHED®
45% Daily Supply of Vitamin C* | Naturally Fat Free | Full of Vitamins and Minerals



BasinFresh.com BasinFresh.com BasinFresh.com

# Purple Fiesta Premium Organic Potatoes

## Low-Fat Blue Cheese Purple Mashed Potatoes

Prep Time: 20 mins. Cook Time: 15 mins.

- 1.5 lb. bag pre- washed organic Purple Fiesta potatoes
- 1/4 teaspoon Sea Salt
- 2 tablespoons Heart Healthy Spread
- 1/2 cup fat free milk
- 1/2 cup non-fat yogurt
- 4 ounces crumbled blue cheese
- Freshly ground black pepper to taste

## Directions

Place the potatoes in a large stockpot and cover with cold water. Add salt and bring to a boil over high heat. Reduce heat to medium and cook until fork-tender (about 15 minutes). Drain well. Add potatoes back to the pot they were cooked in, add Heart-Healthy Spread, fat-free milk, and non-fat yogurt. Cream until smooth. Mix in blue-cheese crumbles. Season with salt and pepper. Serve warm.

POTATOES GOODNESS UNEARTHED

# St. Patty's Day Organic Klamath Pearl Colcannon

## INGREDIENTS:

1.5 lb. Bag Organic Klamath Pearl Potatoes
3 slices bacon
1 med. bunch green kale
1/2 large onion, chopped
1/2 cup milk
salt & pepper to taste
1/8 c butter, melted

PREP TIME: 20 MINS. COOK TIME: 20 MINS. SERVINGS: 4

## DIRECTIONS:

1. Place whole potatoes in a saucepan with enough water to cover. Bring to a boil and cook for 20 minutes, until tender.
2. Place bacon in a large, deep skillet. Cook over medium heat until evenly brown. Drain, reserving grease, crumble the bacon and set aside. In the reserved grease saute the kale and onion until soft and onion is translucent (10-12 minutes). Putting a lid on the pan helps the vegetables cook faster.
3. Drain the cooked potatoes, mash with milk and season with salt and pepper. Fold in the bacon, kale, and onions, then transfer the mixture to a large serving bowl. Make a well in the center and pour in the melted butter.

Serve immediately and enjoy!

POTATOES GOODNESS UNEARTHED

# Skin-On Irish Potato Soup

PREP TIME: 15 MINS. COOK TIME: 1 HR., 5 MINS. YIELD: 11 CUPS

## INGREDIENTS:

1/2 cup unsalted butter

1 medium onion, thinly sliced

3 leeks, sliced

1 1.5 lb. Bag Organic Klamath Pearl potatoes, cut into 1/4 inch pieces

3 (14 1/2 ounce) cans chicken broth

1 teaspoon salt

1/4 teaspoon pepper

Toppings: shredded Cheddar cheese, crumbled cooked bacon, chopped fresh chives

## DIRECTIONS:

Melt butter in a large saucepan over low heat; stir in onion and leek. Cover and cook 20 minutes. Stir in potato pieces; cover and cook 15 minutes. Stir in broth, salt, and pepper; bring to a boil. Reduce heat, and simmer 30 minutes or until potatoes are tender. Remove from heat, and cool slightly.

Process soup in batches in a blender until smooth, stopping to scrape down the sides; return to saucepan, and cook over medium heat until thoroughly heated. Serve with desired toppings.

# From Our Family Farm To Your Family's Table

KLAMATH BASIN FRESH DIRECT

## Klamath Pearl Premium Organic Potatoes

**For Great Recipies Visit www.BasinFresh.com**

Look for these other great Organic Potato Products from KBFD

# Klamath Pearl Premium Organic Potatoes

## Roasted BBQ Aioli Pearl Potatoes

Prep Time: 10 mins. Cook Time: 25-30 mins.

- 1/4 cup olive oil
- 1/4 cup melted butter
- 1/3 cup mayonnaise
- 2 tablespoons fresh minced garlic
- 2 tablespoons fresh chopped parsley
- 1 teaspoon fresh chopped basil
- salt and pepper to taste
- 1/4 cup of your favorite BBQ sauce

## Directions

Mix all ingredients well. Take one pack (1.5 lb bag) of Klamath Pearl potatoes (blanched until tender). Leave small ones and cut larger ones in half; mix potatoes in aioli sauce. Place in roasting pan, uncovered & roast at 350 degrees for about 30 minutes, stirring often. Garnish with fresh grated parmesan cheese and parsley.

# Eat Healthy, Eat Delicious, Be Happy!

Purple Fiesta Premium Organic Potatoes

## Low-Fat Blue Cheese Purple Mashed Potatoes

Prep Time: 20 mins. Cook Time: 15 mins.

- 1.5 lb. bag pre- washed organic Purple Fiesta potatoes
- 1/4 teaspoon Sea Salt
- 2 tablespoons Heart Healthy Spread
- 1/2 cup fat free milk
- 1/2 cup non-fat yogurt
- 4 ounces crumbled blue cheese
- Freshly ground black pepper to taste

### Directions

Place the potatoes in a large stockpot and cover with cold water. Add salt and bring to a boil over high heat. Reduce heat to medium and cook until fork-tender (about 15 minutes). Drain well. Add potatoes back to the pot they were cooked in, add Heart-Healthy Spread, fat-free milk, and non-fat yogurt. Cream until smooth. Mix in blue-cheese crumbles. Season with salt and pepper. Serve warm.

KLAMATH BASIN FRESH DIRECT

POTATOES GOODNESS® UNEARTHED

45% Daily Supply of Vitamin C | Naturally Fat Free | Full of Vitamins and Minerals

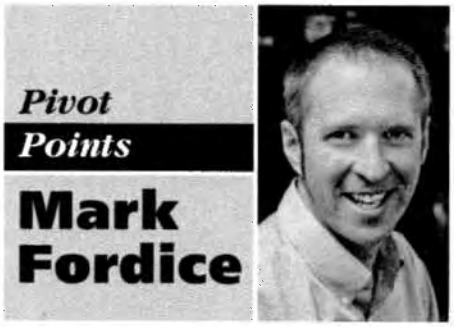
See More Recipes at BasinFresh.com

# Unearthed On Our Family's Farm to Brighten Your Family's Plate

# ODA-S17 Defining the Web-Based Tool that Connects Plant Buyers and Growers

*Attachment 1*: Aug 2011 Digger Article
*Attachment 2*: Strategic Plan
*Attachment 3*: Technical Assessment

# Build it so they will come




In today's digital world, a strong Internet presence is a must for the Oregon Association of Nurseries (OAN) and its members.

The www.NurseryGuide.com website is a key tool the organization can use to drive sales to its member businesses. Consequently, the OAN embarked on a project funded by a USDA specialty grant in fall 2010 to identify areas of improvement. To do this, OAN hired Pivot Group to survey potential plant buyers located throughout the United States.

Survey respondents were asked about their use of the Internet and their satisfaction with finding plant information and services online.

Through phone and online surveys, we reached a total of 519 plant buyers and sellers located throughout the U.S. We also talked to many industry professionals through four focus groups held in the states of Maryland and Washington. Information from the surveys is helping OAN consider potential upgrades to the current site.

In this article, we share some of the key findings with OAN members knowing that it will help you improve your own company websites.

A website that is easy to find has to be a key focal point for OAN and its members in order to grow revenue. Eight-six percent of respondents use the Internet to find plant information, and 67 percent of respondents use the Internet to search for nurseries or other plant sellers. When asked to state their primary method for finding nurseries and growers, 50 percent cited the Internet. Only tradeshows were reported more frequently (68 percent) as a primary method for finding nurseries and growers.

Increase the awareness of NurseryGuide.com, and OAN members will receive more business. There is room for improvement in awareness and use of the NurseryGuide.com website. Nearly half (45 percent) of all respondents are familiar with OAN's website. Of those who are familiar with the site, only 53 percent have visited the site before. This suggests that roughly only one-fourth of the addressable market has visited the site. Finding ways to increase visits to NurseryGuide.com will drive more business to OAN members, as the guide is focused on helping buyers locate OAN-member growers.

> In today's digital world, a strong Internet presence is a must!

Search engine optimization, or SEO, is one promising way to do that. It involves implementing strategies on and off the NurseryGuide.com website that will result in the site appearing at the top of the page when Internet users type keywords related to the content on the website.

With a strong SEO strategy, OAN has the opportunity to increase traffic, and hence business, to OAN members. While use of search engines (like Google and Bing) is high, satisfaction with search results is not.

Some 97 percent of respondents said they use search engines to find plant information. However, nearly three in ten of those respondents (28 percent) said they are not satisfied with the search results.

The top frustrations with online plant information search are inability to find information needed and the problem of finding vague, unreliable or conflicting information.

SEO provides OAN with a great opportunity to drive traffic to NurseryGuide.com without the use of costly pay-per-click campaigns.

Increasing awareness of NurseryGuide.com features and implementing new features of interest to plant buyers and sellers is important to convert website visitors to buyers.

When asked which of seven potential features would interest them the most, 88 percent indicated that they would like to see a list of nurseries selling the majority of what's on their shopping list. Raising awareness that this feature exists, and ensuring that information contained is accurate and up-to-date is an important goal for the OAN. Other features of particular interest to respondents' included information on new varieties, and my-state/my-zone information.

OAN and its members need to take steps to provide accurate and reliable information. Seventy-five percent (75 percent) of respondents said that it is important or very important to know availability before calling a grower. Many growers do not have this information readily available online.

Improving availability information on NurseryGuide.com will require a concerted effort by OAN members to make sure that their own websites and plant information are accurate and up-to-date.

There is no disputing the fact that to successfully market its members, the OAN must have a strong Internet presence coupled with an effective SEO program. Armed with the information gleaned from the online Nursery Guide research project, OAN is well positioned to make improvements to NurseryGuide.com that will connect plant buyers with OAN member plant sellers.

Consider how your own site might benefit from similar improvements!

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*Mark Fordice is the managing principal at Pivot Group. Pivot focuses on providing research, marketing, training and creative services support. Reach him at mark@askpivot.com or 503-575-5215.*

## Online Nursery Guide Site Redesign

# Strategic Plan

ree DIGITAL
he Creative Tech Company

happy, in

# Today's Agenda

**Project Goals & Objectives**

**Nursery Guide & the OAN Brand**

**The Nursery Guide Audience**

**Our Technical Strategy**

**Benefits & Opportunities**

**Future Considerations**

# ect Goals & Objectives

abbreviated list of goals for the redesigned Nursery Guide project include:

reater user convenience and accessibility, and an increase rate of use vs. the nted guide.

educed OAN staff time to maintain member accounts and site in general.

rovide reliable, robust, searchable tool for plant information and providers.

ncrease awareness of the OAN, to build confidence and credibility for the anization, and increase membership.

omplement the OAN organization site, and refer web traffic to OAN.org at propriate key points in navigation flow.

# ect Goals & Objectives, cont.

- Increase perceived value of the Nursery Guide web site, and encourage more active participation among OAN membership.
- Remove barriers to sales, by referring qualified customer inquiries directly t appropriate providers.
- “Transcend the list”, by allowing users to find providers based upon meaningful criteria, by request an item not listed.
- Increase the flow of business to OAN members and Nursery Guide participants.
- Plan for future implementation of an advertising revenue model.

# NurseryGuide Brand

e redesigned Nursery Guide site will support the OAN brand by:

resenting an attractive, professional design that represents the Oregon sociation of Nurseries as a trusted and authoritative voice for Oregon's nursery l greenhouse industry, and positions Oregon as a premier nation-wide source quality plant material.

eflecting the look and feel of the OAN brand, echo the OAN's mission, and r site visitors to OAN.org at appropriate touch points.

elivering a robust, intuitive user experience that encourages frequent utilizatio both visitors and OAN members.

roviding great value to the OAN membership, to build a sense of ownership l trust, and to foster enthusiasm and continued support for the organization l its efforts.

# NurseryGuide Audience

ring our Discovery meetings, insights gained through Pivot's research, and our
ew of competing and complementary websites, five distinct audience
ments have been identified for the OAN Nursery Guide web site:

**Garden Centers/Retailers**

**Growers/Nurseries**

**Landscape Designers**

**Landscape Contractors**

**Re-wholesalers/Brokers**

**Retail Customers**

**OAN Staff Members**

# NurseryGuide Audience: Meet Robert

**Audience Segment:** Garden Center/Retailer

**Location:** Gresham, OR

**Occupation:** Plant Buyer, Green Thumb Garden Center

**OAN Status:** Not currently a member

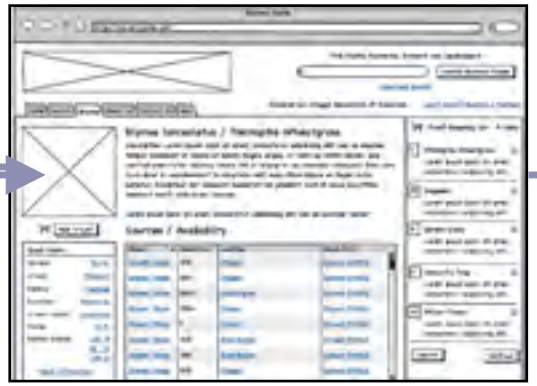
- Robert has worked for the Green Thumb Garden Center for nine years; four years managing the Landscape Services division, and for the last five as Plant Buyer.
- It's important to stock the varieties customers want, but there are financ risks with acquiring poor quality plant material.
- Customers have been asking for new hosta varieties by name, and he is interested in finding a qualified new supplier of these varieties.
- Robert is comfortable with computers, and starts his search for a provid Googling "Hosta grower Pacific Northwest".

# NurseryGuide Audience: Robert's Experience

**Plant**
**or Green**
**Garden**

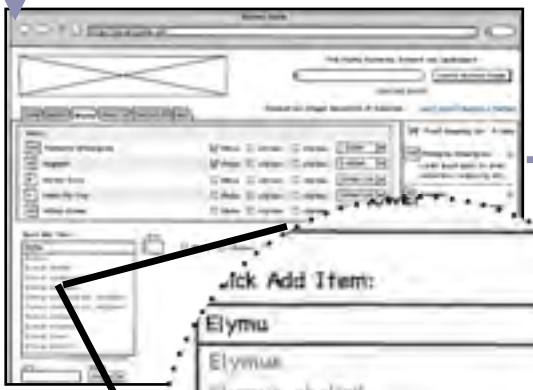
Search Engine Optimization

Find Plant Details and Sources

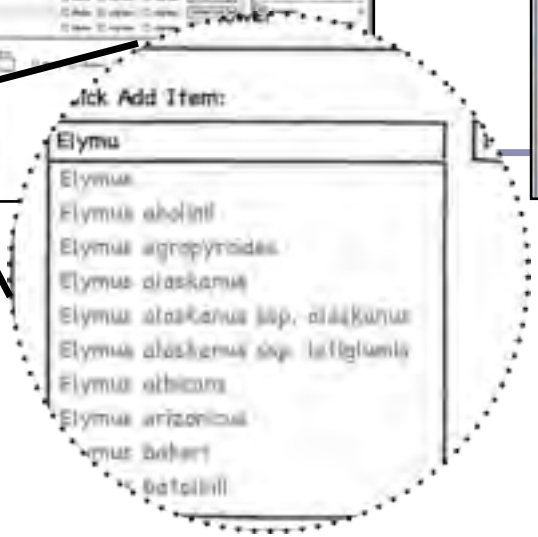


View Supplier Prof

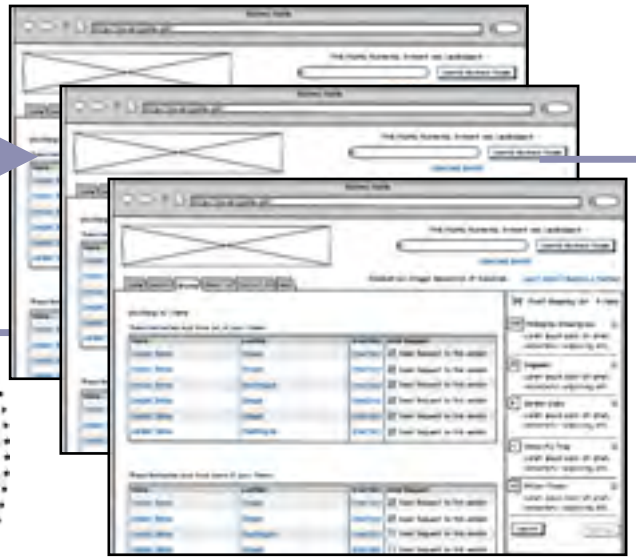
Prepare Request



Easily Add Items




Send Multiple Requests



Review Responses and

# NurseryGuide Audience: Robert's Results

**Plant**
**or Green**
**Garden**

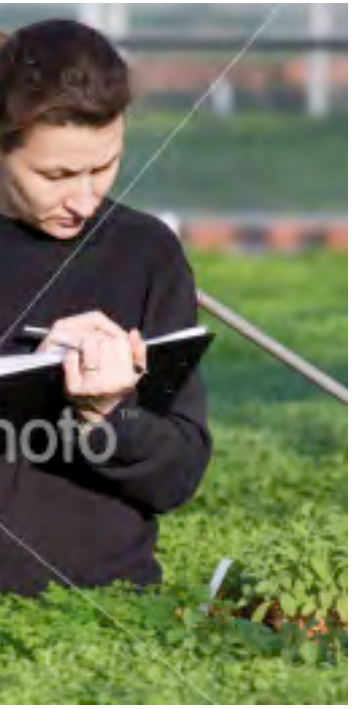
Robert submits an estimate request for an extremely popular new variety of Hosta.

**Lydia, Grow**
**OAN Membe**

Lydia responds by providing an estimate for fulfilling Robert's order, along with several photos of the plants themselves taken that day.

Robert also bookmarks the Nursery Guide as a resource for the Green Thumb's retail staff.

# NurseryGuide Audience: Meet Lydia



**Audience Segment:** Grower/Nursery

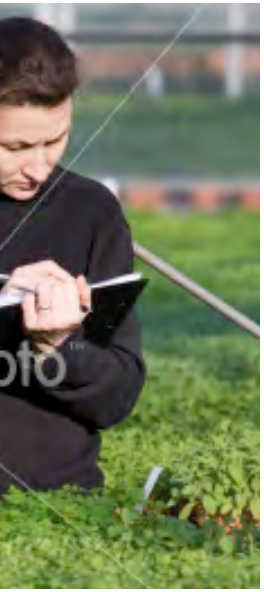
**Location:** Colton, OR

**Occupation:** Co-Owner, Shade Specialties, Inc.

**OAN Status:** Current member

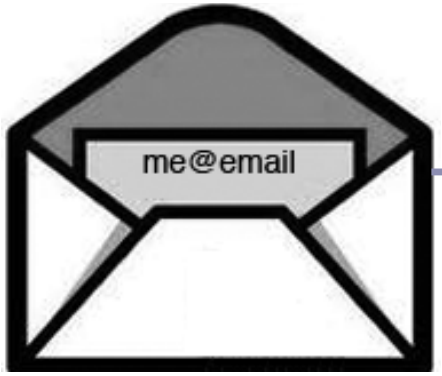
- Lydia and her husband own Shade Specialties, Inc., a nursery specializi new varieties of hostas and other shade plants.
- Lydia considers herself rather business-savvy, and is interested in gainin exposure and networking to build the nursery's reputation.
- Shade Specialties currently has listings in the Nursery Guide, but has no much attention to the newly redesigned web site.
- After the positive experience she had with the Green Thumb Garden Ce request, Lydia decides to check out NurseryGuide.com for herself.

# NurseryGuide Audience: Lydia's Experience

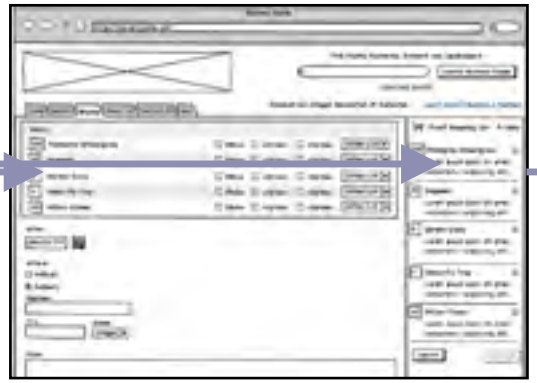


**Owner,**
**Specialties,**

Receive notification of RFQ

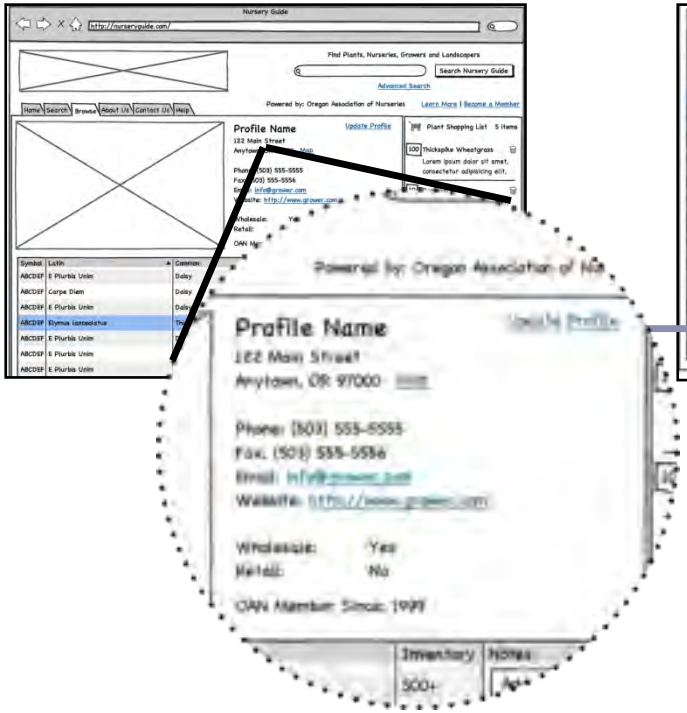



Review RFQ Details

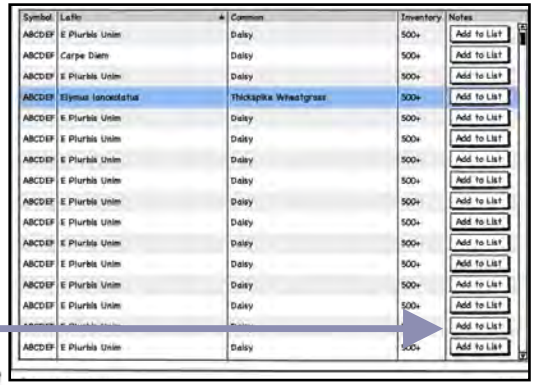


Respond to RFQ

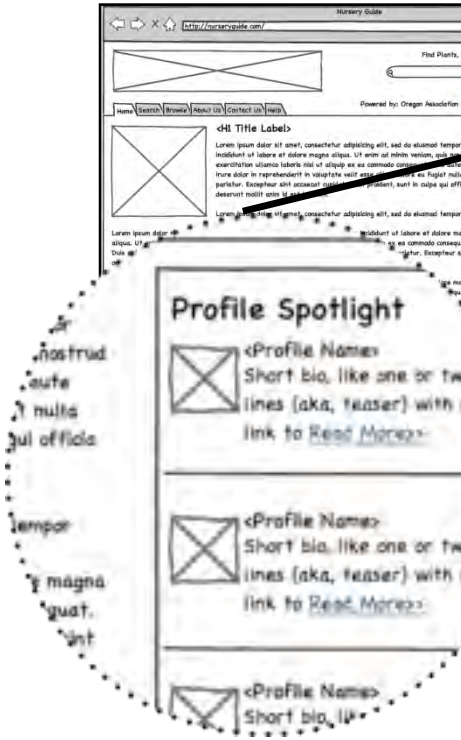
Update Profile



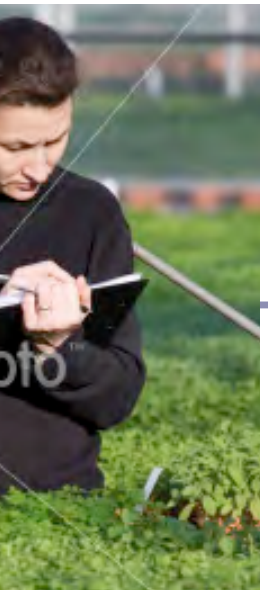

Manage Listings



Promote



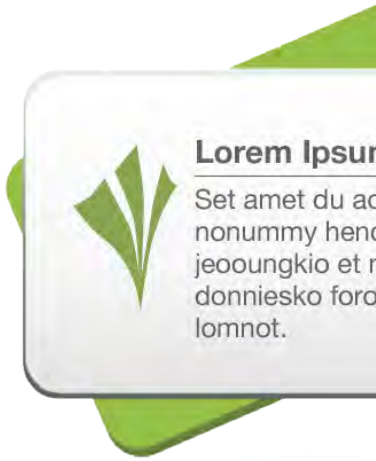
# NurseryGuide Audience: Lydia's Results



**Owner,**
**Specialties,**

Lydia updates Shade Specialties' listings, selecting keywords for each, and uploading several images she has on hand. She decides to buy an additional block of listings, increasing the items she can feature from the current 15, to 25.

She sees she can upgrade to a premium listing, allowing her to be featured on the home page and on search results pages based on search terms. She and her husband are interested in promoting their new varieties, so she'll talk to him about paying to feature some of the showier varieties.



# NurseryGuide Audience: Meet Anne

**Audience Segment:** Landscape Architect/Designer

**Location:** Bend, OR

**Occupation:** Owner, AHL Environments, LLC

**OAN Status:** Not currently a member

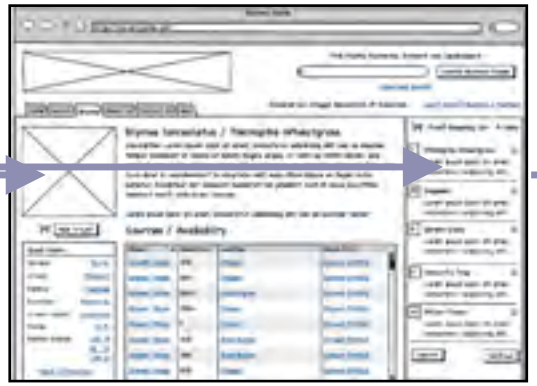
- Anne started her business during Bend's big construction boom, when budgets were generous, and she could afford to employ an assistant.
- Now Anne is on her own and has to do everything herself, including researching plant information and imagery to use in her client proposals.
- Anne needs a reliable, easy-to-use source for information and photos of plants that are appropriate for the various microclimates in the Bend area
- Anne begins her search by Googling "plants and trees Oregon zone 5"

# NurseryGuide Audience: Anne's Experience

**Owner,**
**vironments,**

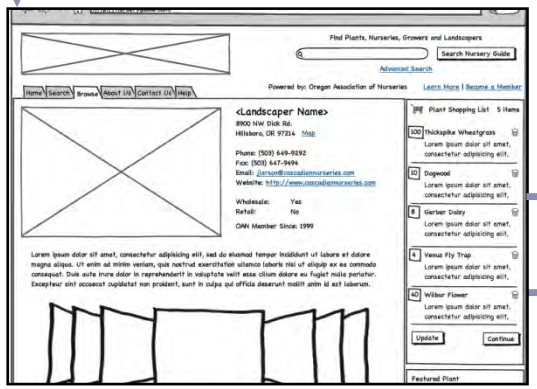
Search Engine Optimization

Find Plant Details and Sources

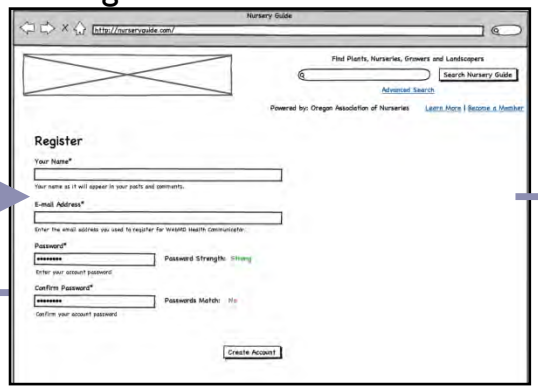


View Retail Suppli

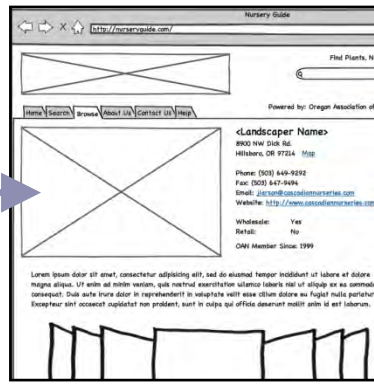
Research Professional Services




Register as OAN Member




Creates New Pro



# NurseryGuide Audience: Anne's Results

**Owner,**
**vironments,**

Anne finds the plant information and imagery she needs for her client proposals. Because the OAN is a professional Oregon resource, she trusts that the information is reliable.

Anne also sees the value of membership in the OAN, and decides to fill out the registration form on the site.

# NurseryGuide Audience: Meet Steve

**Audience Segment:** Landscape Contractor

**Location:** Springfield, OR

**Occupation:** Owner, Harper's Landscaping & Yard Care

**OAN Status:** Current member, active user

- Steve has been in business for himself for nine years. His business is gr and it looks like this year his landscaping business will double, requiring h be on the road and on his smart phone more than ever.
- Steve has established relationships with a number of growers in the Springfield area, but since he transports his plants himself, he needs a sc little closer to his newest client, a homeowner in Troutdale.
- Steve is an enthusiastic user of the Nursery Guide web site. He has use site to submit requests for plant material many times, and has always bee pleased with the convenience and time savings it provides.
- Naturally, Steve begins his search at the Nursery Guide site. He starts b putting together a list of the items he needs for his Troutdale project.

# NurseryGuide Audience: Steve's Experience

**Owner,**
**s Landscaping**
**Care**

# NurseryGuide Audience: Steve's Results

**Owner,**
**s Landscaping**
**Care**

Steve creates his item list and submits it with his Request for an Estimate to several providers.

After receiving the responses, Steve selects the three that are closest to his client. Steve accesses his account on his smart phone, and viewing his choices in map mode, jumps in his truck to pay them a visit on the way to the job site.

# NurseryGuide Audience: Meet Charlotte

**Audience Segment:** Re-Wholesaler/Broker

**Location:** Wilsonville, OR

**Occupation:** Owner, Zee's Trees

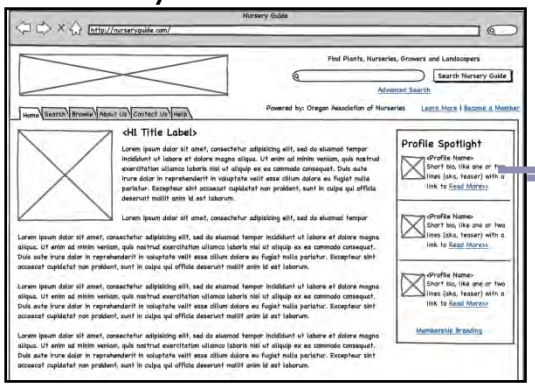
**OAN Status:** Current member, infrequent user

- Charlotte and her husband Gil are plant brokers providing all types of tre and shrubs, and specializing in sourcing and delivering very large trees.
- Gil is extremely picky about the trees he sells, and it's difficult to get the quantity of trees, at the size and quality they need, from one provider.
- Charlotte typically spends hours on the phone, while Gil puts a lot of mil his truck, to fill orders. They both need a more efficient solution.
- Just as Charlotte picks up the phone to begin sourcing trees for the nex order, she spies the printed Nursery Guide sitting on her book shelf, and remembers hearing that they launched a new version of the Nursery Guic site with lots of new ways to search for plant providers...

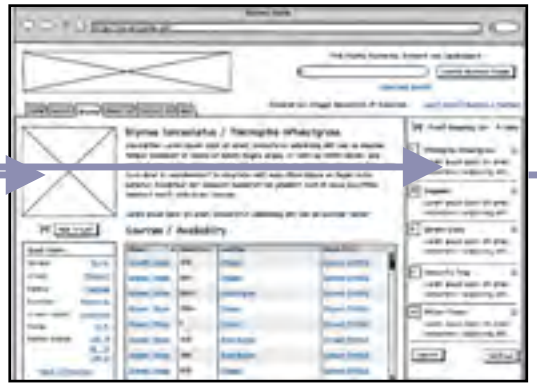
# NurseryGuide Audience: Charlotte's Experience

**te, Owner,**
**rees**

Nursery Guide Search



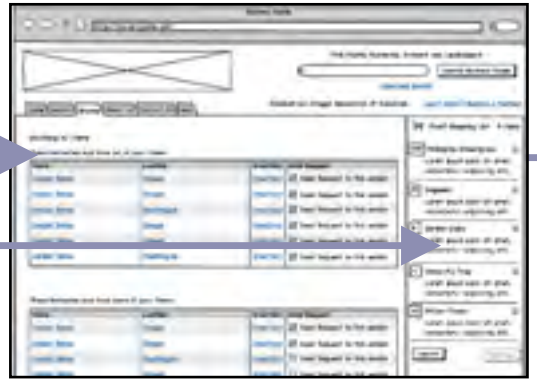
Find Plant Details and Sources



View Supplier Prof

Prepare Request

Send Request



Engage Multiple Ven

# NurseryGuide Audience: Charlotte's Results

te, Owner,
rees

Charlotte creates her item list and submits it with her Request for an Estimate to several providers.

She receives a response from one grower who can fulfill a portion of her order, and who offers to partner with a neighboring nursery to make up the balance of her order.

# NurseryGuide Audience: Meet Scott

**Audience Segment:** Retail Customer

**Location:** Portland, OR

**Occupation:** Freelance Writer, Master Gardener

**OAN Status:** Not qualified for membership

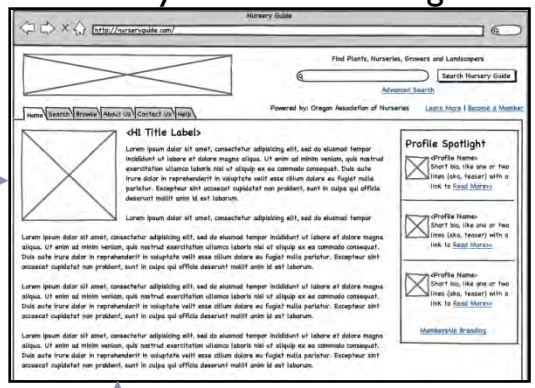
- Scott moved from Chicago to Portland to develop his writing career, bu avid gardener, he's got to admit that the area's long growing season and soils did factor into his decision to relocate.
- Scott is excited about the new plants that he'll be able to grow, and pla create a lush garden paradise in the back yard of his new house.
- When Scott is not writing, he spends time researching Pacific NW plant varieties, and locating providers of the more exciting varieties on his list.
- One day, while searching for information about a particular type of everg clematis, he comes across the OAN Nursery Guide web site...

# NurseryGuide Audience: Scott's Experience

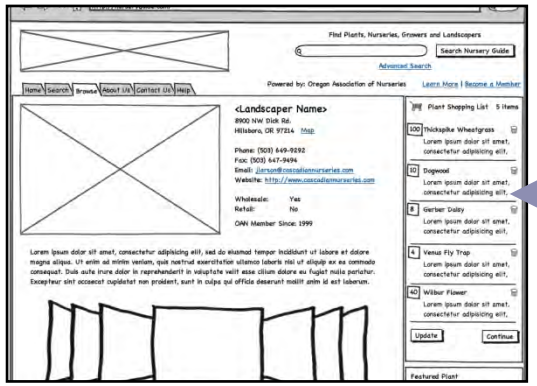
**Writer,**
**Gardener**

Search Engine Optimization

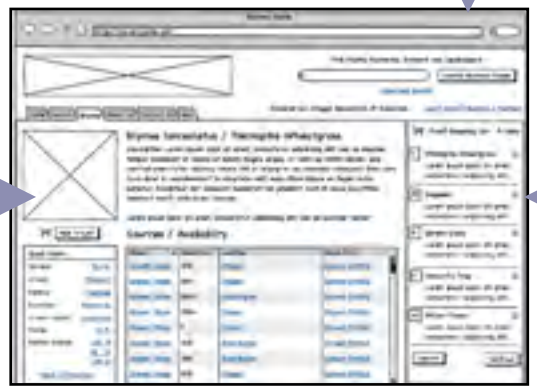
Nursery Guide Home Page




Research Professional Resources




Research Plants



Research Retail Suppl

# NurseryGuide Audience: Scott's Results

**Writer,**
**Gardener**

Scott finds a number of nurseries that sell directly to the public. He checks out their profile pages, and notes their hours of operation.

Scott selects several from the results to view in map mode. He plans a trip to the country to visit them within the next few days.

In the meantime, he also sees an ad on a landing page promoting a local landscaper. He'll need some help with the sprinkler system and the heavy hauling... Scott decides to search for landscapers while he's on the site.

# NurseryGuide Audience: Meet Elizabeth

**Audience Segment:** OAN Staff Member

**Location:** Wilsonville, OR

**Occupation:** Director of Publications & Communications

**OAN Status:** Staff member

- Elizabeth is part of a small staff with a big job to do. Elizabeth has a lot o responsibilities outside the office as well; she's the primary media and pu relations contact for the organization, and serves as staff liaison to the Or Nurseries Foundation, plus she serves on the Board of Directors for the Wilsonville Chamber of Commerce.

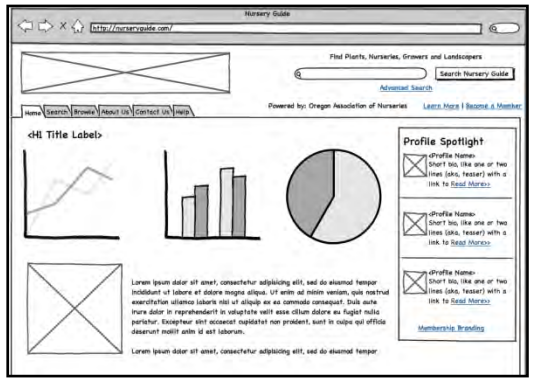
- Elizabeth can remember when she and the rest of the office staff dreade communication tasks, like updating the Nursery Guide catalog, or trying t reliably get a message out to the membership via email. These days, with most members maintaining their information right on the site, they don't h to chase down the details like they used to.

- Which leaves Elizabeth and her fellow staff members time to do other

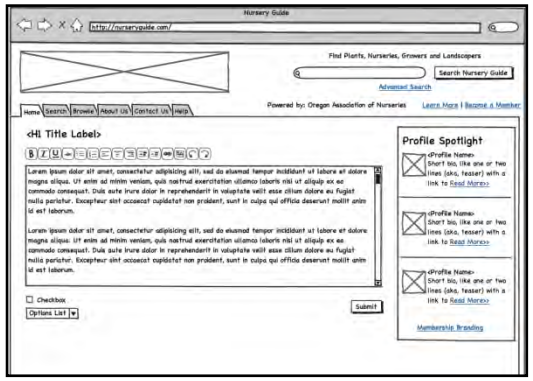
# NurseryGuide Audience: Elizabeth's Experience

**th, OAN**
**ember**

Review Analytics



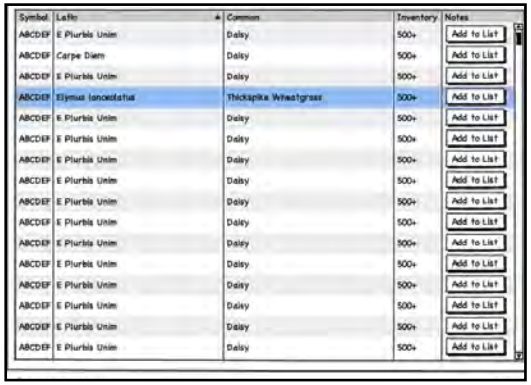
Message Members



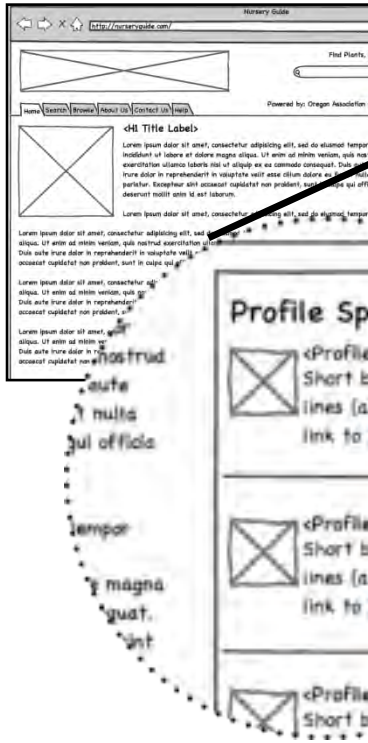
Review Member RF

Review & Moderate Profiles

Review Listings



Promotions and Online A



Export PDF of current catalog

# NurseryGuide Audience: Elizabeth's Results

**th, OAN**
**ember**

*Elizabeth no longer spends her time chasing after email addresses,or tracking down success metrics and membership statistics. She can pull that data from the new web site. Instead, she's been doing much more interesting things:*

She's checking analytics for the Nursery Guide web site, seeing that lots of qualified visitors have used the RFP tool, and that members are purchasing additional listings.

She is working with Anne to develop the advertising revenue model and configure the r tiered membership levels.

She is posting a private message to all OAN members via the CMS, that will appear on member's account pages (and that they will also receive via email), letting them know it time to update their listings on the site in preparation for the print catalog.

She is working with Beth to modify their process for populating the print catalog, arrang to export the updated information from the Nursery Guide site.

She's thinking about new features that they want to release in this robust new platform She's already created a lengthy wish list of next phase enhancements, including social networking features.

# Nursery Guide Technical Strategy

visioning a *Next Generation* Online Nursery Guide:

**owerful:** the new platform should be considered "the Google of its class," ch means not only the breadth and depth of search, but also the ease and ality of the experience. Search Engine Optimization best practices will help ure organic results and increased traffic.

**ustom:** the needs of OAN members, OAN itself and the needs of general nsumers seeking reliable plant information amounts to a custom experience t needs to be designed and developed.

**calable:** to account for future features and functionality that we cannot imagin w, the platform must allow for organic growth and evolution for years to come.

**ost-effective:** a development platform shouldn't be dependent on proprietar tware and steep license fees, specialized development fees, or highly niched velopers.

# Nursery Guide Technical Strategy

ument for Open Source as a Platform:

**eliability:** Open source software is constantly vetted by developers, and ches and fixes are deployed much more quickly.

**calability:** Open source software, like the Drupal CMS, consists of hundreds ot thousands, of modules that represent common website features. Greatly hances the likelihood of finding modules to fit new organizational requirements t may emerge.

**Efficiency:** Development costs are reduced because existing modules and rkflows are likely to exist that can be leveraged to fit individual organizational eds.

**Zero License Cost:** Open source software generally comes without license t fees and also lacks annual support fees. Most costs for open-source projec typically confined to the hourly rates of developers and the cost of hosting.

# Nursery Guide Technical Strategy

veloping a User and Roles-based Experience:

**ser Profiles:** The enhanced Nursery Guide platform will support profile page t can be customized by audience segment. For instance, the profile of a ower might emphasize listings, while a Landscape Designer might emphasize vices and portfolio galleries.

**ccess to Content:** The enhanced Nursery Guide will allow different users to erience the site content differently, depending on role. OAN administrators wil e the ability to see and manage the backend of the database, while onymous retail customers will be unable to request a quote, or access the ntact information of certain wholesale growers.

**obile Users:** The *Next Generation* Nursery Guide will provide an excellent bile experience, with streamlined access to features tailored for the industr fessional on-the-go.  With integration of Geo-location and Google Maps, vigating your day just got easier.

# Nursery Guide Technical Strategy

eraging Best Practices to Shape a Development Approach:

**tilization of industry-leading third-party solutions:** such as Google Maps , where it makes sense.

**latching existing modules in the open-source platform:** to desired tures and functionality, versus using custom programming to enable these tures.

**ocument and prioritize requirements with stakeholder input:** advising o se features that are costly and complex, and those that add value at a lower t, time to implement.

**Use the latest coding techniques and standards:** so that any qualified veloper can contribute to the website, now or in the future.

**Devise a publishing process:** with development, staging and production ironments, using version control to allow replicability and security.

# efits & Opportunities: for Members

e redesigned Nursery Guide site will offer many benefits for OAN members:

**ncreased efficiency** by serving as a centralized information & communicatio
tal.

**earch engine optimization** allowing customers to find appropriate site
ntent, based upon common and industry search terms.

**xtended market reach** through increased exposure to new customers and
tners, and greater awareness regarding product availability.

**ualified lead generation** by pre-qualifying registered site users, and directin
ail users to appropriate vendors only.

**creased revenue potential** through RFP and Estimate submission
portunities.

**etworking opportunities** ??????????

# efits & Opportunities: for the OAN

nefits for the Oregon Nursery Association:

**ncreased efficiency** by serving as a repository for up-to-date member rmation, provided by members, and maintained by members.

**Reduced costs, scalability** ??????????.

**Brand awareness** through increased reach, improved experience, and improv N brand representation.

**xtended market reach** through Search Engine Optimization and site usabilit

**Accurate and timely listings** by providing easy-to-use, intuitive account nagement tools.

**ncreased revenue potential** through increased membership opt-in, and futu lementation of advertising revenue strategy.

**mproved analytics** including general site usage, as well as usage of features h as the RFP request form and search tools.

# re Considerations

ce the site's new Content Management System is implemented and the esigned NurseryGuide.com is launched, the OAN can consider additional tures and enhancements to the site. We recommend that these include:

- nplementation of an online advertising revenue model
- trategies for tools and content specific to mobile users
- ffering members the option to purchase "premier" listings
- reating a consolidated registration process
- nabling real-time product availability and inventory tracking
- larketplace enabling transportation sharing, referrals, collaboration, etc.
- nified data sharing between the web site and the print catalog

OREGON
ASSOCIATION OF
NURSERIES™

Thank you for the opportunity to help envision the strategy for the next generation OAN Nursery Guide.

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# Oregon Association of Nurseries
# Technical Assessment for *Next Generation* of Online NurseryGuide

## Introduction to the Technical Assessment

The Oregon Association of Nurseries (OAN) is committed to leading its industry in discovering new markets for its members' nursery products. For many years, it has maintained a functional, but limited, online NurseryGuide (NurseryGuide.com) that has not aligned to the current organization and business goals of the OAN. Therefore, OAN has made a commitment to working with a team of specialists to define and develop the *Next Generation* of the *NurseryGuide*, which will allow the OAN and especially its members to improve its service and better its reach to new markets.

The Technical Assessment leverages market, audience and strategic information gleaned from previous project steps (see the Strategic Plan and the Pivot Group research) to assess the current OAN technology platform, and to recommend a technical platform and feature set that will meet the needs of users in the *Next Generation* NurseryGuide. Deriving insight from the Strategic Plan, the Technical Assessment includes a set of required features that must be addressed in the *Next Generation* NurseryGuide. These recommendations are not yet highly detailed; rather, sufficient technical detail is provided here to inform the development of a future RFP that can be understood and scoped by any qualified web development team. Additionally, this Technical Assessment speculates on the desired technical platform, its necessary technical architecture, and any requirements to integrate with existing 3rd party systems (as applicable). The Technical Assessment also includes a number of high-level task flows that agree with user profiles and the user experience recommendations from the Strategic Plan. While these concepts convey functional meaning, they are not intended to convey design—whether informational or graphical.

Going forward, the OAN's leadership should use this Technical Assessment as well as the Strategic Plan as a foundation for understanding the core objectives, member and organizational benefits, and scope of requirements for designing and developing the *Next Generation* NurseryGuide.

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## Project Goals & Objectives

For a complete set of business objectives and results, refer to the Strategic Plan document. From a technical perspective, there are a number of objectives and goals that should be addressed and achieved in the implementation of a new platform:

- Streamline the process by which the OAN performs a batch update of the NurseryGuide website on an annual basis;
- Enable OAN members the ability to manage their own profile and product listings data through a password-protected administrative interface, thereby ensuring the data is accurate and up-to-date and saving countless hours of OAN administrative time in performing these updates;
- Develop a powerful, faceted search that allows NurseryGuide visitors the ability to connect plant information to providers, and to filter results by a number of intuitive category selections;
- Encourage and enable more networking and business-to-business interactions amongst members and non-members, resulting in increased revenues for all concerned;
- Allow NurseryGuide users—members and non-members—the ability to request quotes for products and services directly from the providers;
- Reduce overall operating costs for the NurseryGuide, both online and offline, while demonstrating much greater efficiencies;
- Enhance the standing, brand and value of the OAN and its community of users throughout the global industry, elevating Oregon plant products and services to THE standard others follow.

## Methodology

More than a year ago, the Oregon Association of Nurseries (OAN) correctly identified the need and opportunity to define and plan for a *Next Generation* Online NurseryGuide. Its existing NurseryGuide had become outdated, too limited in its scope and capability to deliver the results that OAN members and OAN organization stakeholders expected, and, the aggressive pace of web-based applications and solutions amplified the need to catch-up with the field. But *catch-up* was never an original or intended goal of planning and developing a *Next Generation* NurseryGuide. Rather, OAN and its organizational stakeholders drew a line in the sand and identified that it would not follow, it would *lead*. And not just when it introduces its *Next Generation* NurseryGuide, rather, it would demonstrate leadership for years to come. A bold proclamation such as this

doesn't come without a solid strategy, without will, and from a technological perspective, without a robust, reliable and scalable platform upon which to build.

## Current Platform & Workflow for OAN's Existing NurseryGuide

For many years up until now, the OAN has developed its printed and online versions of its NurseryGuide through a combination of systems that include association management software (Affiniscape's Member 360), a membership database (FileMaker Pro) and a programming system for the existing NurseryGuide website (Lasso CMS) that allows the website to interface with the membership database. On the NurseryGuide.com, the combination of Lasso and FileMaker Pro enable a limited user experience wherein users can search plant information, search for companies, search products and services, etc. However, due to the limitations of the platform and the limitations of Lasso programming experts in the developer community, the features and benefits of the online NurseryGuide have become stagnant.

### Current Workflow for Updating the NurseryGuide

As of early 2011, there are approximately 1,200 OAN members. Each year, OAN requests updates of its membership for listing in its annual publication of the paper and online NurseryGuide. Of the 1,200 members, approximately 200 members complete electronic updates of company and listing information via an OAN-provided Excel spreadsheet. For the balance, many members update listings via paper forms that are mailed or faxed back to the OAN office, while others phone-in updates. In instances of phone updates, OAN personnel enter the appropriate data into the FileMaker Pro database and/or the Affiniscape membership database. The Excel spreadsheets are generally specific to each nursery, so after receiving submissions from the member companies, there is a process to reconcile all of the spreadsheet data into the FileMaker Pro database. This reconciliation process is largely a manual process. While all member companies are welcome to update their data from the previous year and change product listings, some do not and may choose to repeat the data from the previous year. But whether or not data is changed from the previous year, there is a need to archive data from previous years, so the data can be available for reports and inspection by OAN personnel as needed.

On average, there are approximately 25 new or changed listings per grower. As a result, the OAN must ensure quality, and does so by hiring an outside consultant each year to review each of the new plants for quality, and ensure the naming is accurate, etc. There is also the potential for duplicates in the event that the nursery adds

a new plant that was entered into the system the previous year. Thus, the OAN staff conducts a manual dupe-check process to look for such issues.

Member information may currently be entered directly into Affiniscape. There is an auto-import feature that transfers the data from Affiniscape into FileMaker Pro, and therefore the website. Affiniscape is currently used for all membership billing issues.

The workflow described here is tedious and time-consuming and typically occurs during especially busy times of the year for both the OAN and its membership companies. The members do not currently have direct access to their data online, and therefore, most updates are strictly as solicited by OAN, once per year (with just a small number of exceptions). As a result, the accuracy of the current NurseryGuide is held in some doubt by most members.

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## Technical Strategy for Next Generation Online NurseryGuide

More than a year ago, the Oregon Association of Nurseries (OAN) correctly identified the need and opportunity to define and plan for a *Next Generation* Online NurseryGuide. Its existing NurseryGuide had become outdated, too limited in its scope and capability to deliver the results that OAN members and OAN organization stakeholders expected, and, the aggressive pace of web-based applications and solutions amplified the need to catch-up with the field. But *catch-up* was never an original or intended goal of planning and developing a *Next Generation* NurseryGuide. Rather, OAN and its organizational stakeholders drew a line in the sand and identified that it would not follow, it would *lead*. And not just when it introduces its *Next Generation* NurseryGuide, rather, it would demonstrate leadership for years to come. A bold proclamation such as this doesn't come without a solid strategy, without will, and from a technological perspective, without a robust, reliable and scalable platform upon which to build.

### Argument for Open Source as a Platform

Over the last half-decade, open source technology has emerged as not only a fringe option for businesses and organizations, but a leading choice that demonstrates efficiency, security, reliability and extensibility that has appeal not only for the cash-strapped startup, but for enterprise-level organizations at the leading edge. The U.S. White House (whitehouse.gov) has recently migrated to an open source website platform, and indeed, a growing percentage of websites worldwide have embraced the open source model as the logical framework upon which to build. Why? What are the attractive benefits of an open source platform when compared to a closed or proprietary framework for software development? Some of the compelling arguments include:

- Reliability: open source software is constantly reviewed and vetted by an international community of inspired developers, so when compared against proprietary software, open source software is generally considered much more reliable and complete. Moreover, with a community of developers, software defects may be patched much more quickly and solutions deployed just as fast.
- Scalability: open source software, such as Drupal, include a vast range of supported features and functionality as discreet *modules*. In this way, real, or imagined, features may be integrated by developers in a project now…but in the future, as new business requirements are identified, the likelihood of finding a suitable existing module in a library of modules in open source is far more likely when compared against a closed, or proprietary, software model. The result is that open source easily scales to accommodate a rapidly changing world, while proprietary does not.
- Efficiency: given the vast communities of developers across the globe who might support open source, and the existing modules that have been developed that support features, development costs are

lowered because the need for extensive custom development is reduced. In the case where new features are identified in the future, these features have a higher likelihood of being supported by existing modules.

- Zero license cost: open source software generally comes without license, or seat, fees, and likewise lacks annual support fees. Certainly, fees still exist for development teams, but costs may be reduced due to the lack of license and support fees.

For the OAN, the open source model is one that will yield numerous benefits, as alluded to above. For the development platform, an open source model will allow OAN to execute against its current vision of the future, but as the business and technical landscape shifts in the future, OAN will have a robust and scalable platform upon which to react against these shifts.

**Developing a User and Roles-based Experience**

The OAN includes a diverse population of members and audiences that have fairly unique business models, ways of interacting with its customers, and the OAN itself. The current website does not accommodate for these audiences in the user experience, information architecture or content strategy. Partly, this is due to the constraints of the original design, but for a large part, it is due to limitations of the technical solution. In the *Next Generation* Online NurseryGuide, OAN will implement a web-based solution that recognizes the differing needs of its user audiences, as discussed in much greater detail in the sections of the Strategic Plan. While there are confluences of business needs between the grower and the landscape designer, for example, many of their needs are different. The technical platform must be designed in such a way that these differences reflected in a user experience. The new NurseryGuide will enable an audience-based experience through the use of established roles and permissions. Roles and permissions in the platform will enable such functionality:

- Presentation of audience-based displays of Profile data. So while a Grower's profile might display listings, a Landscape Designer might display services and photos of representative work examples.
- Access to certain content: Anonymous or perhaps *retail consumer* users of the website might not be given access to certain details for wholesale growers, but would see detailed information for Garden Centers, for example.
- A mobile user experience: The *Next Generation* NurseryGuide will provide an excellent mobile experience, with streamlined access to features tailored for the industry professional on-the-go.

**Leveraging Best Practices to Shape a Development Approach**

Inherent in the technical strategy for the *Next Generation* NurseryGuide is the responsible use of development best practices as a framework for the development process. Utilizing open source and its advantages as a platform is one aspect, but the development team should also utilize best practices for website software development, including, but not limited to the following:

- Utilization of industry-leading third-party solutions as it makes sense. For instance, in the case where geographical mapping is desired, utilizing the Google Maps API as an alternative to custom development makes good sense.
- Matching existing modules to desired technical features wherever it is advantageous and sensible, and understanding when it is better to use custom development to deliver important features to the platform.
- Document requirements and prioritize them with stakeholder input, advising on features that are costly and complex and those that are comparatively simple to develop. In this manner, a system of prioritization may be devised that will yield faster and better results.
- Use coding techniques that meet the latest development standards so that any qualified developer can contribute to the project now, or in the future.
- Devise a publishing process with development, staging and production environments, using version control, which will allow replicability and security.

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## Core Features & Functionality for the Next Generation Online NurseryGuide

In consideration of the comprehensive research completed this year by the Pivot Group, and the learnings from the Discovery process leading up to this deliverable, the following described features and functions should be considered a baseline for the *Next* Generation online NurseryGuide. These features are not described in detail. It is expected that a website development team will be selected in a next phase and that as a part of that project phase, a Functional Specification will be written that will provide sufficient detail for a development team to execute against. However, for purposes of scoping the design and development phase, the features and functionality described here should serve as a more than sufficient guide.

This section includes details and conceptual mockups for the following features:

- Comprehensive Search Strategy
- Useful Product Listings
- Member Registration
- Role Based Users
- Member Profiles
- Shopping Lists
- Request for Quotation
- Social Features
- Administrative Features

**Site Search**

To maximize worldwide exposure, and enhance the user experience, the NurseryGuide website should implement a comprehensive search strategy including Search Engine Optimization, and an Internal Search Feature that is present across all templates. The individual plant variety listings and member profiles should include consideration of the search objective. Keywords and descriptive text in both plant listings, and member profiles, should allow these pages to rank well in search results.

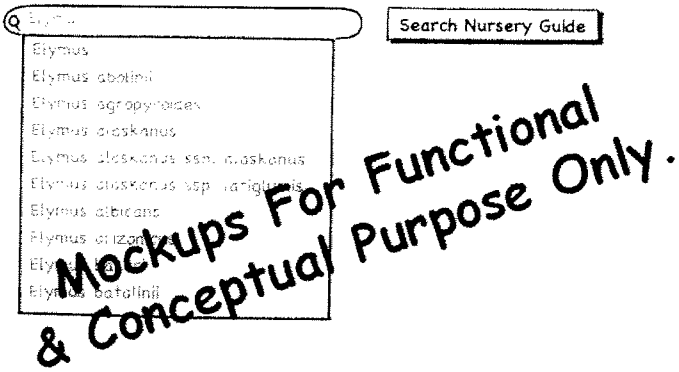
**Search Engine Optimization (SEO)**

Established SEO best practices should be implemented throughout the website, and may include Keyword and Description Meta Tags, Keyword URL's, Keyword Titles, and a complete site map registered with the major search engines (Google, Yahoo, Bing, etc.). Plant listings and member profiles should be targeted as Search Engine Landing Pages. The SEO strategy is core to the overall objectives and goals of the project. OAN desires that the NurseryGuide rank highly for a number of strategic key terms to be considered the best in its class. It will be important that the selected website developer has demonstrated SEO expertise, experience with SEO analytics software and resources to implement a SEO strategy across a website such as this.

**Internal Search Feature**

The website should implement a comprehensive internal search. The Internal Search Feature should have two primary access points: one being a "Simple Search" field available on every page within the website. The other search mechanism being an "Advanced Search" option which offers detailed search filters and optional search criteria, including geographical location (zip code, or mobile geo). All search input entry fields should include an "Auto-Complete" feature to aid in finding matching records. The Auto-Complete feature should list matches for plant listing Latin and common names, as well as member organization names. (See Fig. 1, Quick Search.)

***Figure 1. Quick Search Functionality with Auto-Complete***




*Mockups are for functional and conceptual purpose only and not to suggest information architecture or visual design.*

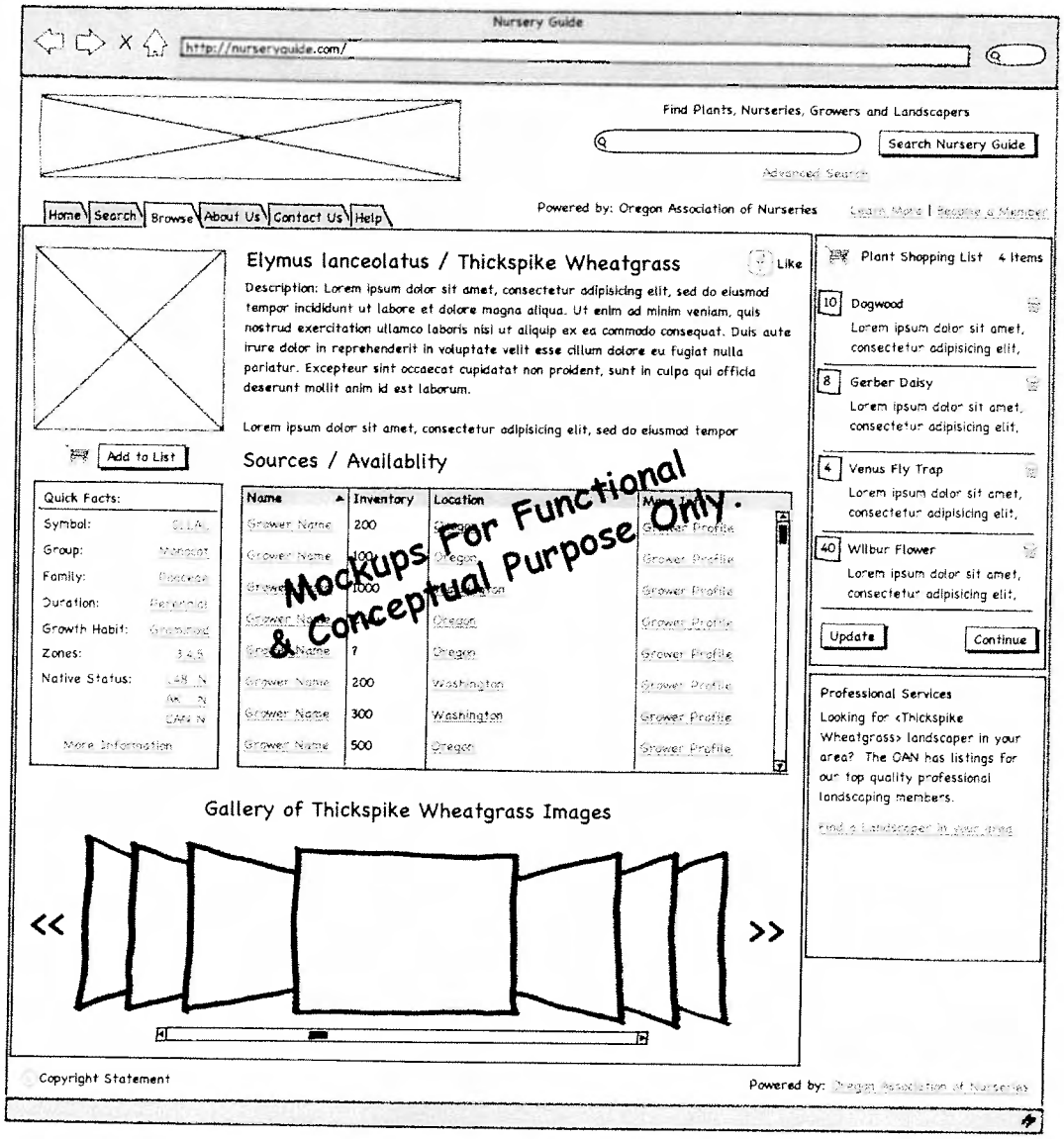
**Product Listings**

The detailed research performed by the Pivot Group, indicates that many users may visit the website seeking information about specific varieties of plants. Product listings should therefore include plant descriptions, plant photographs, regional information, substitution recommendations, and potential sources determined by member product listings.

The plant listing database should be cross referenced to product listings maintained by the members, and supplemented by data from internal resources and third party data sources. Potential data sources may include the USDA Plant Database, Wikipedia, and others.

Vendors who have listings that match the plant listing should be listed on the plant details page. Visibility of specific vendors should depend on the role of the visitor, for example, retail or anonymous visitors should only see vendors who have opted to be visible to retail customers. In the event that no vendors have listings for the specified plant listing, appropriate substitutions should be listed, and linked to their plant listing pages. (See Fig. 2, Product Listing Page.)

***Figure 2. Product Listing Page***

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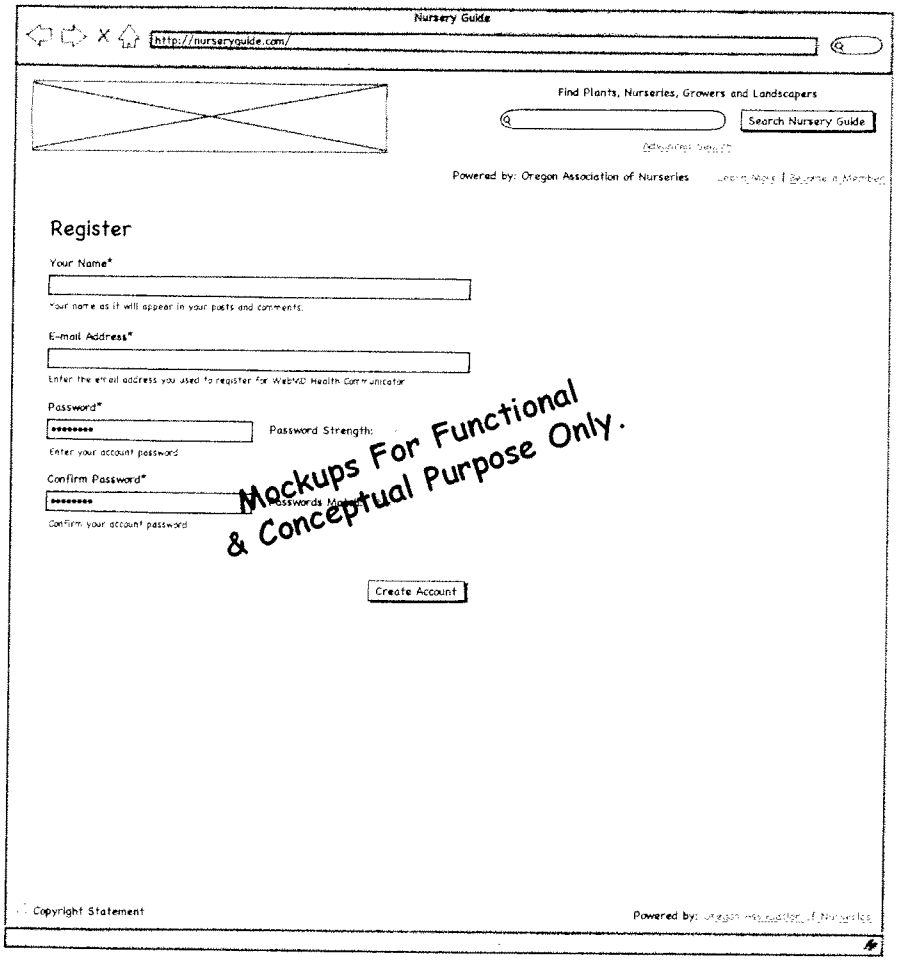
**Member Registration**

The Next Generation NurseryGuide website may require authenticated access for some features, and will provide customized profiles for registered members. To address this objective, an easy to follow registration process should include the ability to display different field sets and data for distinct member audiences.

This registration process should include the ability to select the type of audience segment which best represents their organization. The member registration process will provide the framework for building out and maintaining member profile pages. Optionally, the registration process may require OAN staff approval to activate the newly created account. (See Fig. 3, Registration.)

***Figure 3. Registration***




*Mockups are for functional and conceptual purpose only and not to suggest information architecture or visual design.*

**Member Roles**

Upon registration, and depending on appropriately selected types, site members should be assigned a specific role, which will define the type of profile they will have, and the types of features available to them. Some likely website roles will include:

- Growers
- Nurseries
- Garden Centers
- Brokers
- Landscape Contractors
- Landscape Designers
- Non-OAN Site Members

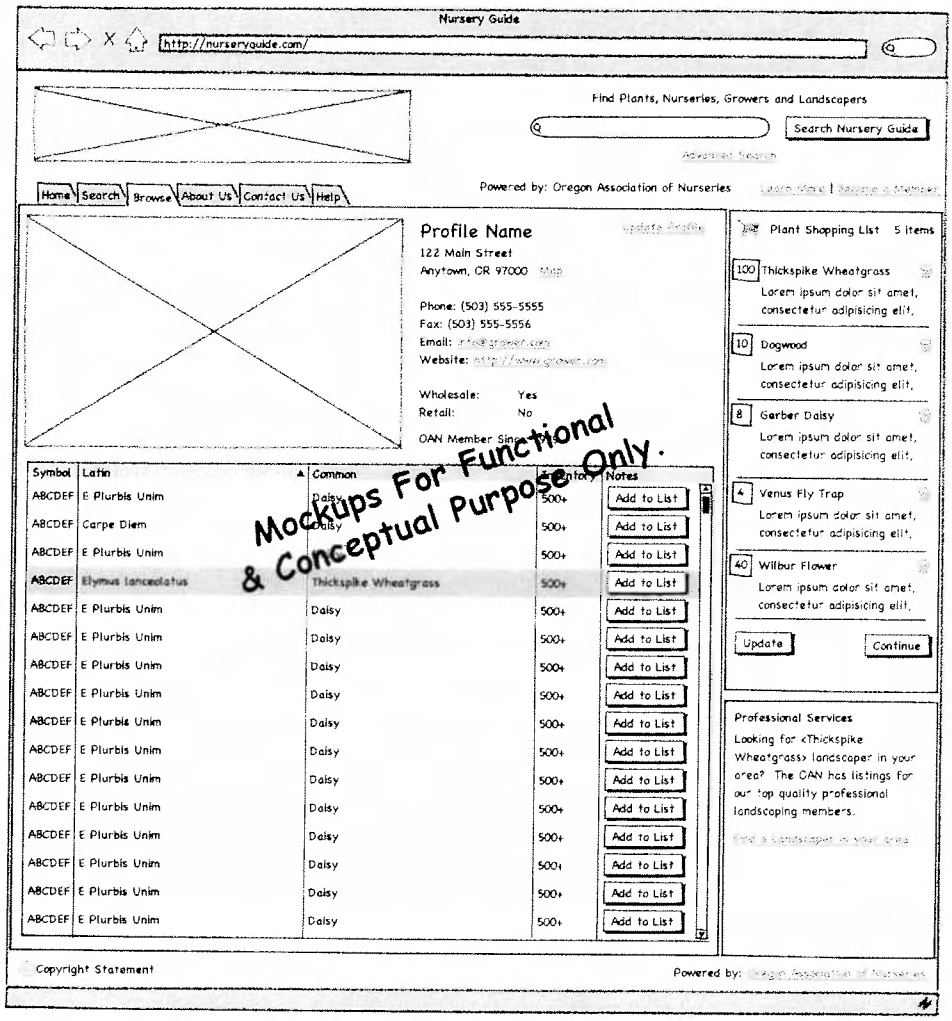
**Member Profile Pages**

All OAN members should have "Profiles" within the website. The initial configuration of the website should include importing existing OAN members into the site member database, and populating baseline profile records. Imported members should receive email notification of their new accounts, and be invited to modify and/or populate and enhance their member profiles. Features of member profiles may include:

- Organization contact information
- Organization Description
- Organization Keywords
- Organization Logo or Photograph
- Plant Listings
- Photo Gallery / Portfolio
- Option to be visible to retail customers

Registered members should be able to edit any of the member profile data, including adding photographs to their gallery, adding listings, modifying organization information, and determining whether to be visible to retail customers. (See Fig. 4, Member Profile Pages.)

***Figure 4. Member Profile Pages***




*Mockups are for functional and conceptual purpose only and not to suggest information architecture or visual design.*

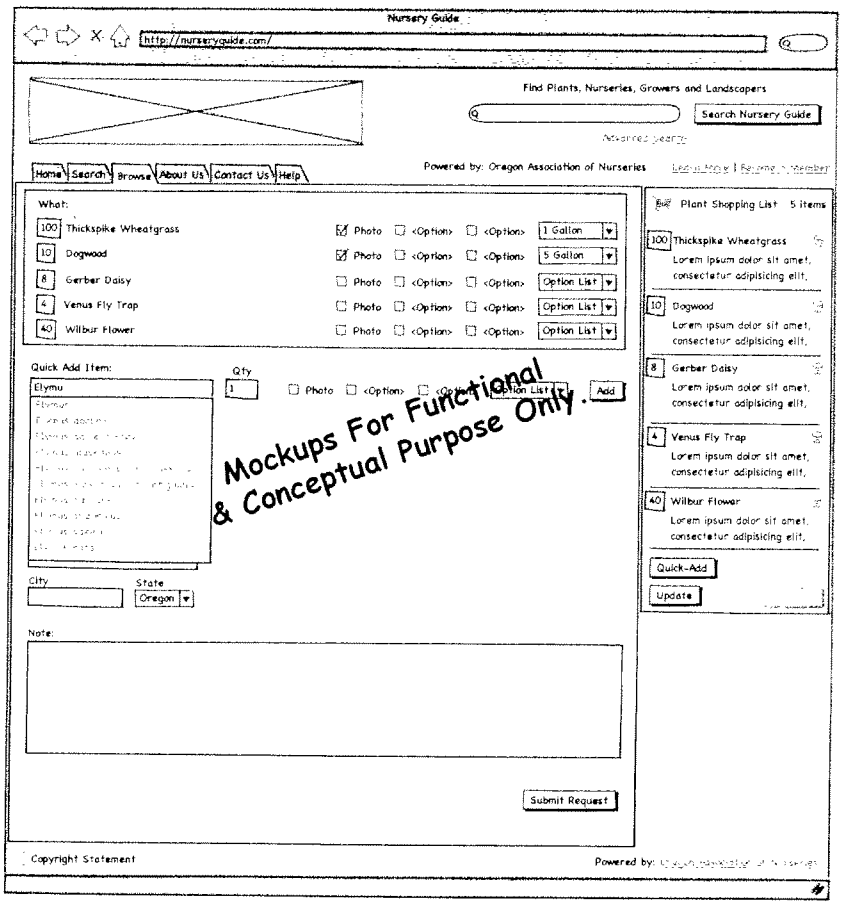
### Social Features (Like)

In order to facilitate building professional business associations between members, profiles should have the ability to "Like" each other. The "Like" status should be used to build contact lists, and increase search relevance when searching for products and services that match liked profiles. Optionally, members viewing profiles may be able to see the "Likes" associated with the profile.

**Shopping Lists**

Using the search results, product listing pages, and vendor profiles, site members will have the ability to create "Shopping Lists" with the items they desire. The shopping list can be used to store lists of items that they would like to locate, research, or purchase. The shopping list can subsequently be used to populate a "Request for Quotation." (See Fig 5, Add Item to Shopping List.)

***Figure 5, Add Item to Shopping List***

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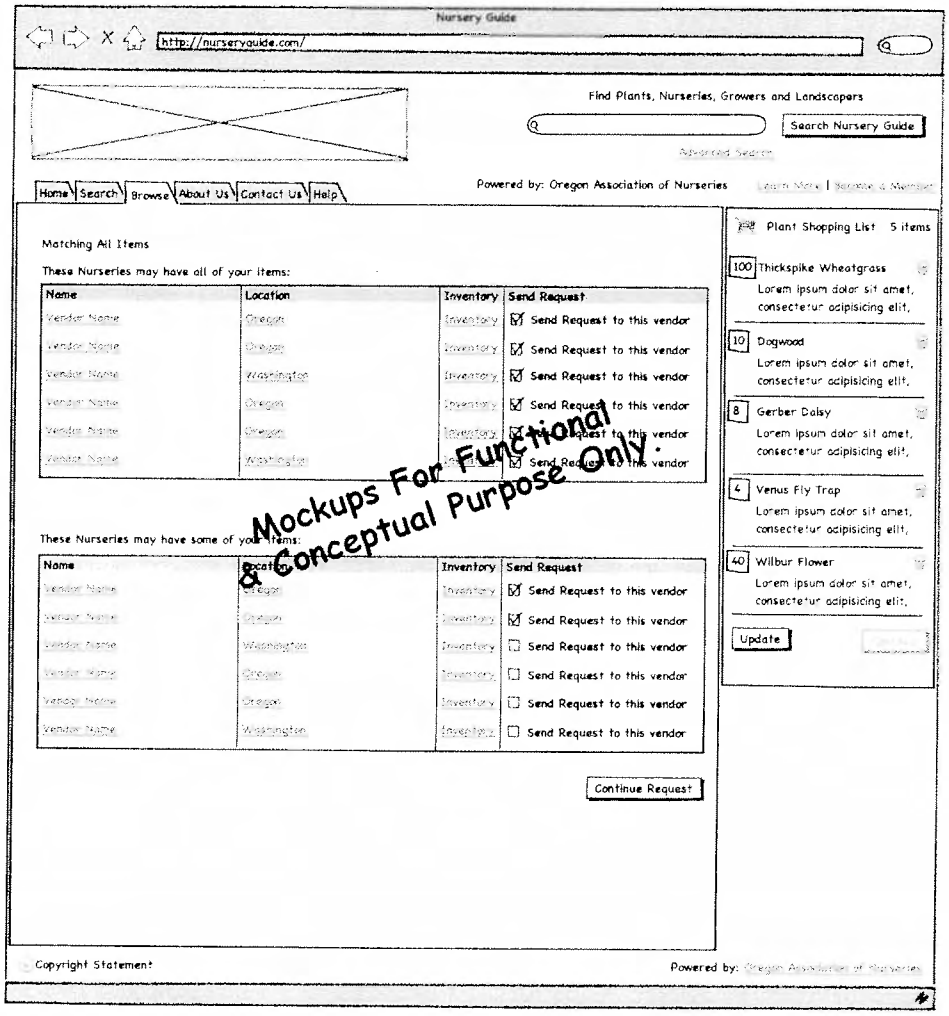
**Request for Quotation (RFQ)**

Logged-in members will have the ability to request information from member vendors, including pricing and availability, and a number of additional options. Upon submission of a "Shopping List", the website will gather sources of the materials within the shopping list, and display an appropriately organized results page (see Figure 6 below). The results page should list vendors who have matching listings. Vendors who have all, or a majority, of the requested items should rank high in the results list. Vendors with only one or a few of the requested items should fall lower in the results list.

Using the results list, members may select vendors, and simultaneously send requests for pricing and availability to the selected vendors. Optionally, the requestor may identify other criteria for their request, such as size, photographs, etc. There should also be a general purpose notes section within the request for free form communication, or requests which are not covered in the item listings or item options.

Recipient vendors should receive an email notification of the request, and be permitted to respond generally, or on a line-by-line basis. Upon completion by the recipient, the request should be sent back to the requestor via the website and email for review and further action. (See Figs. 6 & 7, Request for Quotation.)

***Figure 6 & 7, Request for Quotation***

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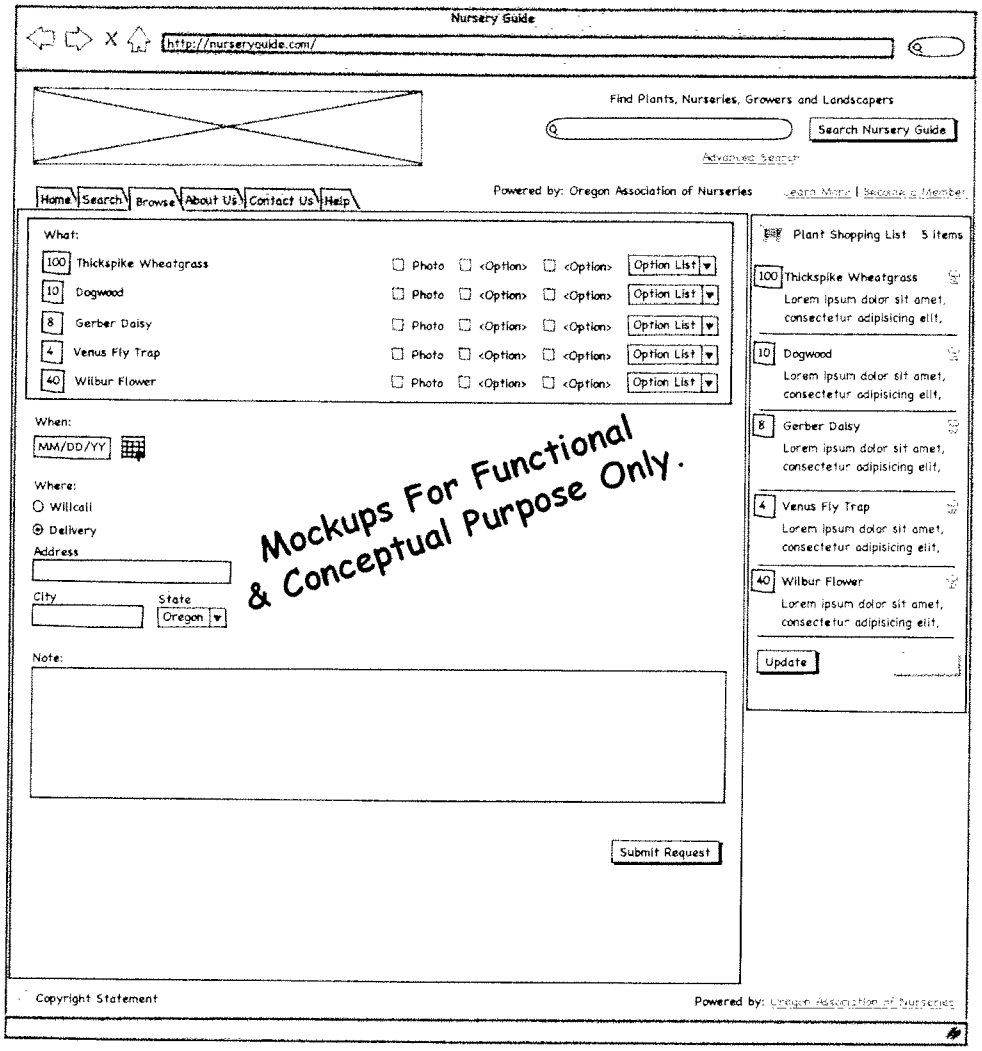


*Mockups are for functional and conceptual purpose only and not to suggest information architecture or visual design.*

### Administrative Functions

The *Next Generation* NurseryGuide will include the ability to grant administrative control to appropriate users within the OAN organization. Administrative functions should include:

- User Management
- User Messaging
- Profile Management
- Reporting Features

- Data Import / Export
- Billing Features

Administrative users will have the ability to manage users, edit all content and profiles, edit keywords and descriptions, add and delete photographs, etc. Reporting features may include reviewing RFQs, accessing page views, traffic levels, and search terms.

Site Administrators should have the ability to message members individually or en-masse. A simple interface comparable to Email should be created for communication within the site.

A key feature of the Administrative function should be the ability to export the current listings, by organization, for import into the printed NurseryGuide catalog. Optionally, the website could be configured to export a PDF of the catalog suitable for printing.

## Future Considerations for the *Next Generation* NurseryGuide

Once the site's new Content Management System is implemented and the redesigned NurseryGuide.com is launched, the OAN will be able to consider additional features and enhancements to the site.

Our Discovery discussions revealed that there were a number of features that while they generated significant interest, the membership, or in some cases, the OAN itself, were not yet ready to fully support or adopt them. Although the strategy for the Phase I web site does not include the implementation of these features, it is important to note them, to insure flexible engineering and design solutions are developed in anticipation of their addition in an immediate next phase.

The development process should include a modular approach to features, so that new features can be added without affecting existing features. The modular approach will allow the OAN to roadmap features for the future, including but not limited to:

- Implementation of an online advertising revenue model
- Strategies for tools and content specific to mobile users
- Offering members the option to purchase "premier" listings
- Creating a consolidated member registration process through NurseryGuide.com
- Enabling real-time product availability and inventory tracking
- Marketplace enabling transportation sharing, referrals, collaboration, etc.
- Unified data sharing between the web site and the print catalog
- Bulletin Board, Blogs, and other Marketing Communication Channels

## Staffing & Resource Requirements for OAN to Support NurseryGuide

Relative to the current workflow for the printed NurseryGuide and its online equivalent, the OAN will maintain similar generalized resource needs as it pertains to administering both forms of the NurseryGuide. However, the focus of effort will change in the future, away from highly manual processes to a more active management of member data, product and service listings in the CMS, etc. Where in the past and immediate present, OAN staff must spend significant time managing the annual member and member product listing data updates, in the future, member organizations will be able to administer their member profile data and product listings

directly, using the CMS. Therefore, OAN staff will be able to focus efforts on more high-value tasks, from assisting members by optimizing their profile and listings data, messaging members to encourage more activity through the site, reviewing analytics, review and moderate profiles, manage promotions and advertising campaigns that run through the site, etc.

Looking to the future of the *Next Generation* NurseryGuide, the following staffing and resource requirements will need to be addressed:

- **Technical:** Administrators will need to have general familiarity with online software management, especially Drupal CMS management. While CMS training will be provided by the developer of the platform, it will be beneficial for the primary OAN administrators to be moderately technical as the OAN backend administration will have considerable functionality and UI options. If OAN desires to manage Drupal module updates, and/or directly implement feature enhancements to the platform, it will be necessary to have access to a resource(s) who has intermediate PHP programming experience and ideally direct experience with the Drupal CMS. Additionally, new features may require templating and theming, which requires a resource(s) with HTML and CSS experience, and ideally some graphic design background. Most all routine updates, however, can be made by OAN staff without programming and web development experience.
- **Administrative:** Most administrative functions for the future NurseryGuide (not discussed in the bullet above) will be similar in scope and experience required for the present NurseryGuide. That is, member data will still need to be reviewed and confirmed, product listings audited for accuracy and quality, and billing and financial issues are expected to remain the same.
- **Software and Hardware:** For the proposed NurseryGuide discussed in detail here, it is not expected that OAN will need to make any significant investment in new software or hardware for the internal office. If the Drupal CMS is utilized for the platform, it and its related databases, it has no license cost nor support fees. It is likely that OAN will need to change its website hosting provided, and while it is possible that a virtual or shared hosting environment will suffice, resource planning should take into consideration the possibility of a dedicated server, which can cost from $100-$250/month. While it is anticipated that there will be no immediate change recommended for the Affiniscape association management software already in place, it is likely that the FileMaker Pro database will no longer be necessary in the proposed implementation as the Drupal CMS includes a MySQL 5.x database that will contain all of the member and product data.

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## Guidance for Budget & Timeline to Develop *Next Generation* NurseryGuide

As the OAN solicits bids from qualified development agencies to design and develop the NurseryGuide, it should request detailed proposals that detail an approach, a scope of work, assumptions and a task-based estimate that includes pricing detail for all of the project deliverables. For now, budgetary and timeline estimates are broad, intended only to convey guidance for planning purposes. Both budget and timeline will vary by developer, and by a scope of work agreed to. Additionally, depending on the expectations of the OAN on both budget and timeline, it can elect to omit certain features or move them to future phases to reduce both budget and timelines.

For guidance purposes, it is recommended that the OAN budget from **$90,000 to $110,000** for the Online NurseryGuide as described in detail here. For the timeline, it is recommended that the OAN budget between **6 to 9 months** for the project described above.

### Variables on Budget and Timeline

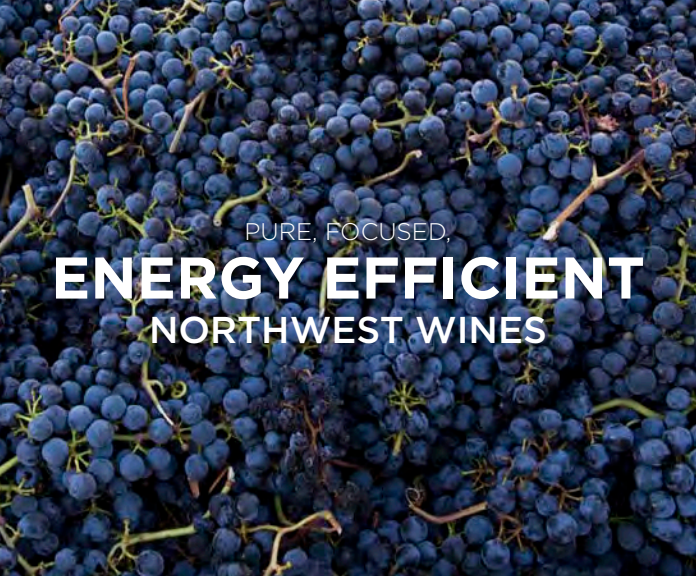
The budget and timeline presented here is only an estimate based on projects of a similar scope. The budget and timeline can be impacted (increased or decreased) by the following typical variables:

- Additional features
- Additional complexity around described features
- Integration with third-party systems not indicated here
- An unusual number of revision cycles, or substantial changes to scope after the normal approval milestones
- Incomplete and delayed content
- Miscommunication around expected website behavior
- Etc.

Most of these issues and variables can be mitigated by strong project management practices, which will be critical to the success of the project.

# ODA-S18 Oregon Carbon Reduction/Carbon Neutral Program

*Attachment 1: Flyer, POP materials*
*Attachment 2: LIVE and CRC Participation Opportunities in 2012 Proposal to Ste. Michelle Wine Estates*



PURE, FOCUSED,

# ENERGY EFFICIENT

## NORTHWEST WINES

Local, Northwest wineries are taking action to reduce their energy use through membership in the Carbon Reduction Challenge.

PROUD WINES. **HUMBLE FOOTPRINT.**

While you sip a glass, learn how you can reduce your energy.

**WWW.CRCHALLENGE.ORG**

MADE CARBON NEUTRAL PLUS KRENAH PAPER

PCF Processed Chlorine Free

100% Recycled Fiber

# THE CARBON
## REDUCTION CHALLENGE

is a certification for Northwest wineries which voluntarily reduce their energy use. The program is in response to demand from the wine industry, which identified a need to deepen its sustainability practices and look for ways to reduce costs without sacrificing their exceptional quality.

THESE WINERIES ARE COMMITED

# TO IMPROVING
## OUR ENVIRONMENT

Their participation in the Carbon Reduction Challenge means they are responsible for an annual inventory of emissions, an energy reduction plan, and verification of their energy reductions by a third-party inspector.

Visit **WWW.CRCHALLENGE.ORG** to learn how you can be energy efficient too.

## ENJOY WINES FROM THESE ENERGY EFFICIENT WINERIES:

A TO Z WINEWORKS
AMAVI CELLARS
CHEHALEM WINES
CRISTOM VINEYARDS
J. CHRISTOPHER WINES
LEFT COAST CELLARS
LEMELSON VINEYARDS
MAHONIA VINEYARD
PEPPER BRIDGE WINERY
REX HILL
SOKOL BLOSSER WINERY
SOTER VINEYARDS
STOLLER VINEYARDS
VIDON VINEYARD
YOUNGBERG HILL
WINDERLEA VINEYARD AND WINERY
PONZI VINEYARDS

PROUD WINES

# HUMBLE FOOTPRINT

Local, Northwest wineries are taking action to reduce their energy use through membership in the Carbon Reduction Challenge.

**CRCHALLENGE.ORG**

CARBON
REDUCTION
CHALLENGE

CARBON
REDUCTION
CHALLENGE

PROUD WINES

# HUMBLE FOOTPRINT

## THESE NORTHWEST WINERIES ARE TAKING ACTION TO REDUCE THEIR ENERGY USE.

These wineries are committed to improving our environment. Their participation in the Carbon Reduction Challenge means they are responsible for an annual inventory of emissions, an energy reduction plan, and verification of their energy reductions by a third-party inspector. Visit **WWW.CRCHALLENGE.ORG** to learn how you can be energy efficient too.

PROUD WINES
HUMBLE FOOTPRINT
THESE NORTHWEST WINERIES ARE TAKING ACTION TO REDUCE THEIR ENERGY USE.
Bottled Water
Beer
Cold Beverages
Imported Beer
Micro Brews
Wine
Ow Priced Every Day
$17.79
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PLANET OREGON
PLANET OREGON
Automatic Price Reduction
$10.99
Automatic Price Reduction
$10.79

# LIVE and CRC Participation Opportunities in 2012

Proposal to Ste. Michelle Wine Estates

August 30, 2012

**Historical commitment to sustainability at Ste. Michelle Wine Estates**

Ste. Michelle Wine Estates (SMWE) leads winegrowers in the Northwest with a commitment to sustainable management in wine production. Maintaining this commitment to sustainability has involved dedication of SMWE's own resources and partnerships with others, including growers, vendors and service providers, universities, and conservation organizations.

SMWE's current participation in Low Input Viticulture and Enology (LIVE) provides its winery facilities with certified sustainable and certified Salmon-Safe fruit, produced on 1,348 acres of company-owned vineyards and many more acres managed by growers contracting with SMWE.

By virtue of its scale and its significant efforts to date, SMWE is positioned to continue its impact and leadership in sustainable wine production. Participation of its wineries in LIVE and the Carbon Reduction Challenge (CRC) is an opportunity for SMWE to most effectively manage and message its efforts, and further protect its credibility in the highly scrutinized world of environmental claims.

**Opportunities for SMWE Wineries**

SMWE is already engaged in conservation efforts at its winemaking facilities. Continual monitoring of resource use at each facility and monthly analysis allow SMWE to strategically manage energy and water usage, and reduce waste across its operations. In addition, energy assessments at SMWE facilities are establishing a detailed picture of how energy is used and how it might be conserved at each winery.

Similar efforts are verified at over 50 wineries in the Northwest through two programs: LIVE's winery certification and the CRC. As a result, member wineries implement best practices at the facility level and are able to make stronger claims in the marketplace. LIVE and the CRC provide their members with annual trainings, resources, and additional support along the path to certification. The LIVE and CRC programs recognize that each winery is unique, that best practices for sustainable management will vary from one winery to the next, and that collaboration and sharing of practices among members is a powerful tool.

LIVE and CRC members who achieve winery certification and talk about their practices are understood by consumers and regulators as part of a system that starts in the vineyard to conserve and to protect natural and human resources. Extending third-party verification to processing facilities protects the integrity of certified ingredients, and is a model widely accepted by federal and state regulators and government agencies. Program members are able to use certification as the basis for approval of label claims, and as credible back-up when discussing sustainability actions with customers.

**Participation Proposal**

SMWE's Oregon and Washington winemaking facilities are already implementing conservation efforts, and participation in the LIVE and CRC programs allows SMWE to highlight these efforts with stronger, reinforced claims and further demonstrate its leadership in sustainability. LIVE and CRC propose SMWE enroll its Oregon and Washington facilities in 2012, to leverage work already completed (specifically, energy assessments and recordkeeping systems) and to take advantage of remaining USDA subsidies, reducing the cost of participation.

**Membership Path**

Because SMWE's winemaking facilities currently practice strategic conservation on many fronts, the opportunities presented by LIVE and CRC participation are achievable in the near term and at relatively low cost. Below is an overview of what is involved in initial enrollment and continued participation.

**LIVE and CRC Winery Certification Overview**

**Year 1:** Members enrolling in LIVE and CRC programs begin by implementing required practices, such as recordkeeping. Both programs require participants to complete reporting and on-site evaluation.

**LIVE –** Members enroll their winery and any adjacent vineyard acreage in the LIVE program. They report their sustainability practices and data, and then undergo an on-site LIVE inspection. Members are eligible for certification of Year 1 activity after successful completion of program requirements.
**CRC** - Members undergo an energy assessment, develop a Carbon Reduction Plan to achieve a minimum 5% reduction of energy use, and begin implementing their plan. Members may use the CRC program logo to demonstrate their program participation and signal to consumers they are working toward energy efficiency.

**Year 2 and 3:** Members' ongoing practices and reporting continue their participation.

**LIVE** - Members report each year's sustainability practices and data, and then undergo a LIVE desk inspection. Members are eligible for continued LIVE certification based on successful compliance with program requirements.
**CRC** - Members report their past year's energy use and continue implementation of practices and/or facility modifications in accordance with their Carbon Reduction Plan. Members are eligible for CRC certification upon third-party verification of their energy reduction.

**Year 4:** Members' ongoing practices and reporting continue their participation, along with an on-site inspection.

**LIVE** - Members report their sustainability practices and data, and then undergo an on-site LIVE inspection. Members are eligible for continued LIVE certification based on successful compliance with program requirements.
**CRC** - Members report their past year's energy use. Many members opt to combine LIVE and CRC site inspections and verify their energy reduction at this point. Following this, members update their reduction plan and demonstrate continual improvement to maintain CRC certification and participation, such as reporting additional scopes of energy and fuel use.

**Participation Costs**

Fees are assessed on a per facility basis. On-site visits for winery certification occur in the first year of participation and on a three year cycle, with desk inspections in other years. A four year per-facility fee overview is provided below, along with the vineyard certification fee structure for reference.

| | **Year 1** | **Year 2** | **Year 3** | **Year 4** |
|---|---|---|---|---|
| **LIVE Winery Certification** | $1,800.00* | $500.00 | $500.00 | $1,700.00* |
| *Fee descriptions* | *application; annual dues; inspection fee* | *annual dues (desk inspection - no additional fee)* | *annual dues (desk inspection - no additional fee)* | *annual dues; inspection fee* |
| **CRC Winery Certification** | $100.00 + $10.00 per MTCO2e** | $10.00 per MTCO2e** | $10.00 per MTCO2e** | $10.00 per MTCO2e** |
| *Fee descriptions* | *application; annual dues* | *annual dues (desk inspection - no additional fee)* | *annual dues (desk inspection - no additional fee)* | *annual dues (on-site inspection - no additional fee)* |
| **LIVE Vineyard Certification*** ** | $450.00 + $175.00 for first 20 vineyard acres and $2.00/additional acre | $350.00 + $175.00 for first 20 vineyard acres and $2.00/additional acre | $175.00 for first 20 vineyard acres and $2.00/additional acre | $175.00 for first 20 vineyard acres and $2.00/additional acre |
| *Fee descriptions* | *application; inspection fee; annual dues* | *inspection fee; annual dues* | *annual dues (desk inspection - no additional fee)* | *annual dues (desk inspection - no additional fee)* |

** LIVE Winery fees shown are for facilities producing over 50,000 cases annually – lower production volumes have lower inspection fees. Not included in this calculation are USDA subsidies available to the first ten new winery members in 2012, which reduce first year fees by $500.00.*
***CRC's annual dues are based on the energy used in Scopes 1 and 2 (onsite energy use and electric utility) of the previous year, calculated as MTCO2e or metric tonnes of carbon dioxide equivalent (the internationally accepted unit for greenhouse gas reporting). Dues are a minimum of $600.00 and a maximum of $2000.00.*
****LIVE wineries follow a whole-winery sustainability principle and enroll adjacent vineyard property in the LIVE program.*

Initiating program membership in 2012, Ste. Michelle can use its completed energy assessments and existing recordkeeping protocols in addition to available subsidies to reduce direct and indirect costs of participation.

**Background on LIVE and CRC**

LIVE is a 501(c)3 non-profit organization and the leading sustainability program for Northwest winegrowers, providing third-party certification and education to more than 300 member vineyards and wineries. The CRC, a program of LIVE, brings best practices in energy efficiency to wineries focused on costs savings at the facility level. Both programs work with regional partners and bring scientists and university researchers together with winegrowers for key technical guidance.

www.liveinc.org

www.crchallenge.org

**Partners**

www.iobc-global.org
The IOBC (International Organization For Biological And Integrated Control Of Noxious Animals And Plants) has honored LIVE with its first endorsement of an organization in the United States.

www.salmonsafe.org
Salmon-Safe certifies ecologically sound watershed management practices. LIVE performs Salmon-Safe inspection at no additional cost during the LIVE vineyard inspection.

wawgg.org
WAWGG advocates for the Washington winegrowing industry, partnering with LIVE and CRC to educate winegrowers about sustainability and develop resources like Winerywise.

www.vineatrust.com
Vinea is a Walla Walla-based group of winegrowers and partners with LIVE and CRC for sustainability certification and education.

ocsw.org
OCSW is a consumer marketing program that has recognized LIVE's vineyard and winery certifications.

# ODA-S20 “Eat Your Berries!” The Oregon Berry Festival

*Attachment 1*: OBF Press Releases
*Attachment 2*: Poster
*Attachment 3*: Passport
*Attachment 4*: T-shirt

PRESS RELEASE

Celebrate summer in Oregon at

***"Eat Your Berries!- The Oregon Berry Festival".***

Portland, OR – Like your Mother always told you, "Eat Your Berries!". The Ecotrust event spaces in Portland, will host the Oregon Berry Festival, July 22nd & 23rd, 2011. Visitors will have a chance to taste and buy some of the season's best berries and also sample amazing products made with Oregon's berry bounty. Admission is free for all events at the Ecotrust. Hours will be from noon to six on Friday, July 22nd and 11AM to six on Saturday, July 23rd.

This will be a fun family event with children's activities, live entertainment on the "Blues Berry" stage, a Portland chef berry cook-off and a chance to win a berry hued bucket bike and eat your fill of Oregon berries. There will be ice creams, pies, cobblers, jams, strawberry shortcake plus the unexpected taste treat like Marionberry BBQ sauce, red raspberry beer, cranberry chocolates, natural blueberry soda and much more.

Visit our website www.oregonberryfestival.com for more information. We are accepting vendor, volunteer and entertainment applications at this time. Check back soon to buy tickets to the Gala Berry Dinner prepared by Executive Chef Phillipe Boulot and held at the Heathman Hotel on Saturday, July 23rd.

The Oregon berry industry is one of the largest and oldest in the U.S. Four Oregon berry groups are joining together for the first time to promote their berries as "Oregon" berries at this festival. The festival is funded in part by a USDA Grant award through the Oregon Dept. of Agriculture.

**For Use: Spring & Summer 2011**

**Contact: Cat McKenzie**
**catmc@peak.org or 541-456-2264**

**Darcy Kochis**
**dzettler2000@gmail.com or 503-505-3876**

PRESS RELEASE

Chef Philippe Boulot will prepare the Gala Berry Dinner – the culmination of the very first Oregon Berry Festival!

## *"Eat Your Berries! - The Oregon Berry Festival".*

Portland, OR – "Eat Your Berries!" - The Oregon Berry Festival presents a Gala Berry Dinner, Saturday, 6:30pm - July 23rd at the Heathman Restaurant.

The Gala Berry Dinner will mark the culmination of the very first Oregon Berry Festival, held July 22-23, 2011 at the Ecotrust Building in Portland's Pearl Distrcit. The Gala will showcase all of Oregon's premium berries in a six-course gourmet dinner paired with the finest of Oregon wines. Dinner guests will be treated to appetizers and berry cocktails beginning at 6:30 pm.

An extravagant display of Oregon's berry bounty will be presented in a blind tasting for guests. There will be prizes for those astute enough to correctly identify each berry variety from this sumptuous display. The show stopping dinner, prepared by master Chef Philippe Boulot and his staff will feature multiple courses each one inspired by one or more of Oregon's prize berry varieties. This is sure to be a highlight of the summer dining season in Portland!

Tickets are now available for purchase at oregonberryfestival.com/gala-berry-dinner Tickets are $80 and tables may be purchased at 10 seats per table.

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Like your Mother always told you, "Eat Your Berries!" The Ecotrust event spaces in Portland, will host the Oregon Berry Festival, July 22nd & 23rd, 2011. Visitors will have a chance to taste and buy some of the season's best berries and also sample amazing products made with Oregon's berry bounty. Admission is free for all events at the Ecotrust. Hours will be from noon to six on Friday, July 22nd and 11AM to six on Saturday, July 23rd. Visit our website www.oregonberryfestival.com for more information.

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**For Use: Summer 2011**

**Contact: Cat McKenzie**
**catmc@peak.org or 541-456-2264**

**Darcy Kochis**
**dzettler2000@gmail.com or 503-505-3876**

# # # #

# Gala Berry Dinner

## July 23, 2011

## 6:30pm to 8:30pm

Indulge in a gourmet dinner prepared by Chef Philippe Boulot featuring Oregon's berry bounty - a true taste of summer

THE HEATHMAN
RESTAURANT & BAR

1001 SW Broadway at Salmon
Portland

Purchase Tickets at
oregonberryfestival.com
$80 prix fixe includes wine pairings

EAT YOUR BERRIES!
Oregon Berry Festival

EAT YOUR BERRIES!

2011

# Oregon Berry Festival

OregonBerryFestival.com

**Free Admission!**

**Featuring**

Fresh Berry Farmer's Market
Oregon Berry Wines, Jams, Candies and More
Children's Activities
Portland Chef Cook Off
Live Entertainment on the Blues Berry Stage
Food Carts featuring Oregon berry items
Gala Dinner at the Heathman Restaurant

**Fri, July 22**
12:00PM to 6:00PM

**Sat, July 23**
11:00AM to 6:00PM

**Ecotrust Event Center**
NW 10TH & Johnson,
Portland, Oregon

Eat Your Oregon Berries! OREGON-BERRIES.COM · Portland Farmers Market · Oregon Blueberry Commission · ecotrust · Oregon Cranberry Growers Association · Oregon Strawberries Sweeter. Redder. Simply Better. · Oregon Department of Agriculture · New Seasons Market

# Stamp Your Passport Here!!!

| | | |
|---|---|---|
| Find Oregon Berry Photos & get stamps from booths throughout the event. | | |
| | | |

Name _____

Phone Number or Email _____

In Oregon, chances are it's the Mahaffy family farm, where sunshine and organic pasture make cows healthy and the milk nutrient-rich. Organic Valley milk gets its delicious farm-fresh taste and naturally-occurring Omega-3s from cows grazing pasture on our local family farms. Always produced without antibiotics, synthetic hormones and toxic pesticides.

**25 Oregon family farms.**

BIKE GALLERY

PORTLAND, OREGON
~ EST. 1974 ~

# $5 off
## a $25 Purchase

**Hollywood**
5329 NE Sandy Blvd
Portland, OR 97213

**Woodstock**
4235 SE Woodstock Blvd
Portland, OR 97206

**Beaverton**
12345 SW Canyon Rd
Beaverton, OR 97005

**Downtown**
1001 SW 10th Ave
Portland, OR 97205

**Division**
10950 SE Division St
Portland, OR 97266

**Lake Oswego**
200 B Ave
Lake Oswego, OR 97034

***www.bikegallery.com***

Redeemable at all of our six Portland-area locations. Not to be combined with any other offers or discounts. Not valid on service or repair. *Expires 9/30/11.*

*2011 Oregon Berry Festival*


Stamp This Passport
For your Chance to Win a
Trek Allant Bike!!!

Turn the completed passport in on the 2nd Floor!

# Get the Best — Pick Oregon Berries!

Oregon is known for some serious berry growing!

People worldwide recognize Oregon as the "Berry State," home to just about every major berry that grows in the US. Oregon berry farmers grow strawberries, blueberries, cranberries, blackberries, Marionberries, Loganberries, Boysenberries, red raspberries, black raspberries, and more! Oregon berry farmers are dedicated to producing top quality, premium berries on family farms using farming practices that have been passed down for generations. In fact, our farmers were practicing sustainable agriculture long before it was a trendy buzzword. Oregon's berries taste better because they ripen slowly through the warm days and cool nights of our summer weather to reach the peak of ripeness and exceptional taste. When you want the best pick Oregon berries.

Take home a taste of the Great Northwest with Oregon Berries.

# Harvest Dates

**Raspberries**
Black Raspberries: July 1–July 31
Red Raspberries: June 14–July 20

**Blackberries**
August 10–September 15

**Cranberries**
October–November

**Blueberries**
June 28–September 15

**Strawberries**
June Bearing: June 4–July 1
Day Neutral Varieties: May 20–October 1

**Marionberries**
July 10–August 10

# Berry Good for You!

Oregon berries are true superfruits, rich in healthful antioxidants, loaded with fiber, vitamins, minerals and shown in study after study to be an effective part of a healthy diet that can keep your body in top shape and help combat the diseases of aging. Oregon berries are a nutritious solution for families young and old to make healthy eating more convenient and affordable. Fresh or frozen, Oregon berries are available year round making sure you don't miss one day of this nutritional powerhouse in your diet. Need some great ideas for berry recipes using Oregon berries? Stop by these Oregon berry commission websites for down home goodness to gourmet recipes:

Eat Your Oregon Berries!
OREGON-BERRIES.COM

OREGON BLUEBERRY COMMISSION
OREGONBLUEBERRY.COM

OREGON STRAWBERRIES
SWEETER. REDDER. SIMPLY BETTER.
OREGON-STRAWBERRIES.ORG

OREGON CRANBERRY GROWERS ASSOCIATION
CRANBERRYFARMERS.ORG/OCGA.htm

EAT YOUR BERRIES!

2011

# Oregon Berry Festival

OregonBerryFestival.com

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Eat Your Oregon Berries! OREGON-BERRIES.COM · Portland Farmers Market · Oregon Blueberry Commission · ecotrust · Oregon Cranberry Growers Association · Oregon Strawberries Sweeter. Redder. Simply Better. · Oregon Department of Agriculture · New Seasons Market

# Nutrients & Chemical Properties

| | Red Raspberry | | Blackberry | | Strawberry | | Blueberry | | Cranberry | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nutrients** | Fresh | IQF | Fresh | IQF | Fresh | IQF | Fresh | IQF | Juice | Dried & Sweetened |
| Calories (Kcal) | 52 | 44.62 | 42 | 64 | 32 | 35 | 57 | 51 | 46 | 308 |
| Calories from fat (Kcal) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lipids (g) | 0.65 | 0.06 | 0.49 | 0.43 | 0.3 | 0.11 | 0.33 | 0.64 | 0.13 | 1.37 |
| Total Carbs (g) | 11.94 | 9.71 | 9.61 | 15.67 | 7.68 | 9.13 | 14.49 | 12.17 | 12.2 | 82.36 |
| Dietary fiber (g) | 6.5 | 2.6 | 5.3 | 5 | 2 | 2.1 | 2.4 | 2.7 | 0.01 | 5.7 |
| Sugar (g) | 4.42 | 5.1 | 4.88 | 10.67 | 4.89 | 4.56 | 9.96 | 8.45 | 12.1 | 65 |
| Protein (g) | 1.2 | 1.31 | 1.39 | 1.18 | 0.67 | 0.43 | 0.74 | 0.42 | 0.39 | 0.07 |
| Vitamin A (IU) | 33 | 90 | 214 | 114 | 12 | 45 | 54 | 46 | 45 | 0 |
| Vitamin C (mg) | 26.2 | 15.29 | 21 | 3.1 | 58.8 | 41.2 | 9.7 | 2.5 | 9.3 | 0.2 |
| Calcium (mg) | 25 | 13 | 29 | 29 | 16 | 16 | 6 | 8 | 8 | 10 |
| Iron (mg) | 0.69 | 0.86 | 0.62 | 0.8 | 0.41 | 0.75 | 0.28 | 0.18 | 0.25 | 0.53 |
| **Chemical Properties** | | | | | | | | | | |
| Sodium (mg) | 1 | 1.5 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 3 |
| pH | | 3.0–3.66 | | 2.8–3.8 | 3.27–3.86 | | 3.08–3.81 | | | |
| Titratable Acidity (as % citric acid) | | 15.53%–18.28% | | 16.66% | .58–1.35 | | 13.7%–14.2% | | | |
| Soluble Solids | | 8.4–11.4 Brix | | 9-14 Brix | 8.0–11.5 Brix | | 13.7–14.2Brix | | | |
| Total Sugar (in 100g) | 4.42g | 8-15g | 4.88 | 10.67 | 4.89 | 4.45 | 9.96 | 8.45 | 12.1 | 65 |
| Glucose | 1.86g | 3.5g | 2.31g | 3.1g | 1.99 | 2.02 | 4.88g | | | |
| Fructose | 2.35g | 3.2g | 2.4g | 4.1g | 2.44 | 2.17 | 4.97g | | | |
| Sucrose | .20g | 2.8g | 0.07g | 0.4g | 0.47 | 0.37 | .11g | | | |

## Berry Health Benefits

Consumers know that berries consistently rank in the top ten foods for healthy eating. Oregon berries are a premium product picked fully ripe and loaded with all the antioxidants, vitamins and minerals that comes from being grown in the safest growing conditions and best environment possible.

Give your customers a taste of the great Northwest

Pick Oregon berries!

# Oregon Berry Guide

# The Berry State

Oregon, *The Berry State*, grows berries with a premium taste and quality that you will not find anywhere else. The reason is simple—our environment. Take the clean air of the Northwest and mix it with sparkling waters coming down from the Cascade mountains, throw in a maritime climate that lets our berries hang on through long, chilly springs and ripen gently during warm summer days and cool nights and you have a recipe for the world's best berries!

Oregon grows so many varieties of berries we would be hard pressed to list them all, but the strawberry, blueberry, cranberry, blackberry and raspberry varieties all have one thing in common—a flavor that is full bodied and rich, just like you remember a berry should taste.

Oregon berries are the perfect partner to any restaurant, manufacturing or food service application. Our berries can be found fresh, individually quick-frozen and dried and in many other easy to use forms. The high quality of genuine Oregon berries make them the choice of those who seek premium quality ingredients for the taste of the Great Northwest.

This guide shows you many ways to order Oregon berries. If you don't see the pack style or product you want, please contact one of the Oregon Berry Commissions listed below... they are here to help.

Eat Your Oregon Berries!
OREGON-BERRIES.COM

OREGON CRANBERRY GROWERS ASSOCIATION
CRANBERRYFARMERS.ORG/OCGA.htm

OREGON STRAWBERRIES
SWEETER. REDDER. SIMPLY BETTER.
OREGON-STRAWBERRIES.ORG

OREGON BLUEBERRY COMMISSION
OREGONBLUEBERRY.COM

# Oregon Berry Products

| | PRODUCTS | PROCESS | CHARACTERISTICS & FUNCTION | PACKAGING | STORAGE |
|---|---|---|---|---|---|
| **FRESH** | Fresh Berries | Ripe, fresh berries (packaged and available through produce channels, stores). | • Décor, premium image<br>• Flavor<br>• Desirable Texture | • Consumer packs: clam shells, cello packs<br>• Industrial packs: tray | Cold Storage at 32º F (1º C), Relative Humidity at 90 to 95% |
| **FROZEN** | Straight Pack | Fresh berries are packaged blast frozen at -10º F (-23º C) | • Natural color source (range of hues available)<br>• Fresh flavor<br>• Fiber source<br>• Economical | • Plastic pail: 28 lb.<br>• Poly-lined metal drum: 375 and 400 lb. | O to 10º F (-18º to 23º C) |
| | IQF (Individually Quick Frozen) | Individual ripe berries are precooled, individually surfaced frozen, frozen finished so they keep their identity and shape, and packaged. | • Décor, eye appeal<br>• Quality flavor<br>• Free flowing<br>• Consumer appeal<br>• Uniform distribution in finished products<br>• Piece identity | • Poly-lined corrugated cartons: 20 and 30 lb.<br>• Retail poly bags to customer specifications | O to 10º F (-18º to 23º C) |
| **PUREE** | Single Strength Puree | Berries are crushed, finished, pasteurized or cold filled in containers, and frozen. All seeds are removed with a series of screens for the seedless puree. | • Smooth texture<br>• Can be pumped, extruded<br>• Blends readily<br>• Natural source of color and flavor<br>• Available at different Brix levels | • Plastic pail: 28 and 30 lb.<br>• Poly-lined metal drum: 47 to 52 gal. and 400 lb. | O to 10º F (-18º to 23º C) |
| | Puree Concentrate 2x | Fresh berries are crushed, heated/enzyme treated, vacuum concentrated pasteurized and packaged frozen. All seeds are removed with a series of screens. | • Thickener<br>• Can be pumped, extruded<br>• Sugar substitute<br>• Natural source of color and flavor<br>• Blends readily<br>• Available at different Brix levels | • Plastic pail: 4 and 6 gal, and 28, 30 and 60 lb.<br>• Poly-lined metal drum: 47 to 52 gal. and 400-500 lb. (depending upon desired Brix) | O to 10º F (-18º to 23º C) |
| **JUICE** | Single Strength Juice | Berries are crushed, pressed/filtered, pasteurized, packaged and frozen. | • Natural source of color and flavor<br>• Low pH<br>• Compatible with most beverage bases | • Plastic pail: 5 and 6 gal, 50 and 66 lb.<br>• Poly-lined metal drum: 47 to 52 gal. and 400-500 lb. (depending upon desired Brix) | O to 10º F (-18º to 23º C) |
| | Juice Concentrate | Berries are crushed, heated/enzyme treated, pressed/filtered, vacuum concentrated, pasteurized, packaged and frozen. | • Sugar substitute<br>• Available at different Brix levels<br>• Easy to measure, dispense, blend<br>• Adoptable to all fluid processes<br>• Source of color and flavor | • Plastic pail: 5 and 6 gal and 50 and 66 lb.<br>• Poly-lined metal drum: 47 to 52 gal. and 450 to 575 lb. (depending upon desired Brix) | O to 10º F (-18º to 23º C) |
| | Frozen Beverage Base | Berries are diced and mixed with a thickened sweetened sauce. | • Use for drink formulations and toppings<br>• Easy handling and pouring<br>• All natural product and ingredients<br>• Ships frozen | • 35 ounce bottles, 6 per case, Strawberry, Blueberry, Red Raspberry, Marionberry | 24 mos. in unopened containers when stored frozen |
| | Essence | Berries are crushed, heated/enzyme treated, pressed/filtered, volatile flavor components distilled off and packaged. | • Clear product<br>• Easy to measure and dispense<br>• Perfect for adding to juices or jams<br>• 150 fold | • Plastic pail: 5 and 6 gal. | Tightly closed container of 40º F (4º C) of lower |
| **SHELF STABLE** | Canned | Fresh or frozen berries are placed in cans, light or heavy syrup added, sealed, heated and labeled. | • Shelf-stable<br>• Ready-to-use<br>• Sterile | • 303 can: 16.5 oz<br>• #10 can: 100 oz | Shelf Stable. Store in a cool, dry place. |
| | Bakery / Fruit Fillings | Fresh or frozen berries (puree or juice concentrates may also be used) are sweetened; starch/gum-based slurry is added, heated and packaged to specifications. | • Level of fruit solids varies depending on supplier<br>• Application specifies viscosity, total solids, water activity | • 55 gal. drums or 5 gal. pails | Shelf Stable. Store in a cool, dry place. |
| | Jam/Preserves/ Fruit Spreads/ Conserves/Jellies | Fresh or frozen berries are vac pan cooked, bottled and cooled | • With seeds or seedless with fruit definition or smooth | • Consumer Packs various sizes Glass or Plastic Jars<br>• Food Service Containers various sizes<br>• Plastic Pails | Shelf Stable |
| | Syrup | Fresh of frozen berries are vac pan cooked, bottled and cooled | • Syrups can be made with fruit definition or smooth | • Consumer Packs various sizes Glass or Plastic Jars<br>• Food Service Containers various sizes<br>• Plastic Pails | Different formulas shelf stable and refrigerated |
| | Aseptic | Fresh berries are heated, cooled, placed in a sterile container and sealed (processed in a closed system) | • No special storage needed<br>• Shelf-stable<br>• Ready-to-use<br>• Sterile | • Bag in box 25 and 42 lb.<br>• Bag in metal drum: 450 lb.<br>• Bag in tote: 1,200 lb. | Shelf Stable. Store in a cool, dry place. |
| **DRIED** | Drum Dried | Fresh or frozen berries are pureed, then drum dried as flakes or ground into powder. | • Available in various screen sizes<br>• Moisture level typically at 3–5%<br>• Ideal for low moisture applications i.e. breakfast cereals | • Poly-lined corrugated boxes.<br>• Custom packaging available. | Stable at room temperature for < 3 months. After 3 months, store at 40º F (21º C) |
| | Freeze Dried | Fresh berries are flash frozen, placed in a vacuum chamber and sealed in moisture proof packs. Available in whole, pieces, granules and powder. | • Available in various screen sizes<br>• Moisture level typically at 3–5%<br>• Ideal for low moisture applications | • Poly-lined corrugated boxes.<br>• Custom packaging available.0 | Stable at room temperature for < 3 months. After 3 months, store at 40º F (21º C) |
| | Belt Dried | Fresh or frozen berries (puree or juice concentrates may also be used) are sprayed on belt (floating over hot water), and dried to flakes or powder. | • Moisture level typically at 3–5%<br>• Ideal for low moisture applications | • 30 lb. cases.<br>• Foil laminated bags. | 18 month shelf life at less than 70º F (21º C) |

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# ODA-S22 Increasing Consumer Awareness of Oregon Certified Sustainable Wine®

*Attachment 1*: Agenda – Seattle Media Tour
*Attachment 2*: Agenda – San Francisco Media Tour
*Attachment 3*: Summary – Wine Media Tour coverage
*Attachment 4*: Summary – Wine Event "Unwine'd" coverage

OREGON
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# Oregon Wine Board

Seattle Media Familiarity Tour
March 13-15, 2012

**Tuesday, March 13:**
8 a.m. -- Coach arrives at Mercer Island Park & Ride. (Jamie Peha will be on the coach. Her mobile number is: 206-661-8243.

8:30 a.m. -- Coach departs.

11 a.m. – Cole Danehower, Peter Szmczak meet Charles Humble in OWB parking lot, drive to Hood River.

12:30 p.m. -- Coach arrives at Nora's Table in Hood River for lunch and portfolio tasting of wines from the Columbia Gorge and Columbia Valley AVAs.

Theme: The Columbia George: America's most unique wine region.

Guests: Rachael Horn, Aniche Cellars; Leah Hunter, Cathedral Ridge Winery; Luke Bradford, Cor Cellars; Alexis Pouillon, Domaine Pouillon; Franco Marchesi, Marchesi Vineyards and Winery; Nicole Backus, Phelps Creek Vineyards; Lonnie Wright, The Pines Vineyard and Winery; Carey Kientz, Springhouse Cellar; Rich Cushman, Vienton Wines.

Menu

First course
- Crispy wedge of pork belly, Hood River apple and fennel salad with honey walnuts, salted caramel (Sauv Blanc, Pinot Grigio/gris, even some Viognier)

Second course
- Caramelized onion and roasted mushroom soup (wine pairing: pinot noir)

Third course
- House-made three-cheese ravioli, oxtail, roasted tomatoes, grana cheese (medium-bodied reds: sangiovese, merlot, red blends, primitivo, zinfandel)

Dessert

- A cookie and truffle plate, with offerings that would go well with late harvest Rieslings and ice-wine style Gewurztraminers, as well as red wine ports. (Examples: chocolate ganache pecan bars, chocolate brandy truffles, lemon petit fours, hazelnut white chocolate meringues).

3:30 p.m. -- Coach departs Hood River for Portland.

4:45 p.m. -- Coach arrives at Hotel Vintage Plaza, downtown Portland, check-in.

6 p.m. -- Reception and dinner with Oregon wine pioneers.

Theme: Oregon's legendary Pinot noir producers.

Guests: Tom Danowski, Myron Redford and Vikki Wetle, Susan Sokol Blosser, Jim Bernau, Luisa Ponzi

Menu:

6-7 p.m. Pazzoria
- Antipasti Platters
- Sliced seasonal fruit platter
- An assortment of Italian cured meats - bresaola, proscuitto, speck
- and various salami
- Imported and domestic cheese - an assortment of hard and soft
- cheeses
- Served with house baked breads

7 p.m. Dinner Pazzoria

Insalata
- Lucca Salad
- Baby spinach, sliced Washington apples, candied walnuts, blue
- cheese, white balsamic vinaigrette

Primi
- Gnocchi
- Handmade potato pillows, lava lake lamb ragu, pecorino romano

Secondi Choice of:
- Storione
    - Washington sturgeon with savoy cabbage, pancetta, butternut squash and red wine
- Bistecca
    - Grilled Wagyu New York steak, artichokes and parmesan reggiano

Dolci
- Formaggio
- Lemon mascarpone cheesecake with seasonal fruit compote
- Includes house baked bread, coffee and tea service

Overnight at Hotel Vintage Plaza.

**Wednesday, March 14**

Lite breakfast at your leisure in the Pazzoria (voucher provided).

8:30 a.m. coach departs for Black Walnut Inn, Dundee

10 a.m. coach arrives at Black Walnut Inn

Theme: The untold story of Oregon's sparkling wine opportunity.

Guests: Rollin Stoles, winemaker, Argyle Winery; Courtney Harris, Soter Vineyards; Buzz Kawders, owner Domaine Meriwether.

Menu

Warm beignets on the table in baskets

Hazelnut and pear Mille feuille

Braised bacon with blood orange infused hollandaise on toasted brioche

White truffle infused custard with Dungeness crab and caviar

**12:30 p.m.** Depart Black Walnut Inn for Sokol Blosser Winery

Theme: Oregon's sustainability story

Guests: Jason Tosch, vineyard manager, Anne Amie Vineyards; Alex Sokol Blosser, Sokol Blosser Winery; Pat Dudley, president, Bethel Heights Winery; Barbara Gross, sales and marketing director, Cooper Mountain Vineyards.

**1 p.m.** Vineyard, winery and cellar tour led by Alex Sokol Blosser

**2 p.m.** Tasting of Oregon sustainably produced wines with remarks by Jason Tosch, Pat Dudley and Barbara Gross in the cellar.

**3:30 p.m.** Coach departs for The Allison Inn and Spa

**4 p.m.** Coach arrives at The Allison Inn and Spa, check-in

**6 p.m.** Tasting of Oregon value wines and dinner in The Board Room

Theme: Oregon wines that deliver a lot of punch for the buck.

Guests: Deb Hatcher, director of marketing, A to Z Wineworks and Rex Hill Winery; Shawn Bavaresco, brand development director, VinMotion.

**7 p.m.** Dinner in The Board Room

Menu

Hors D' Oeuvres

- Charcuterie Platter, selection of assorted house cured meats, house pickled vegetables, traditional accompaniments
- Seasonal Flatbread, butternut squash, smoked pork shoulder, parmesan fondue, roasted hazelnuts
- Assorted Local and Imported Artisanal Cheeses

First Course

- Gnocchi
- foraged mushrooms, maitake fritti, crème fraîche

Celeriac Soup

- house cured ham, guanciale croquette, watercress oil

Entrées(Please Choose One)

- Wild Alaskan King Salmon, nettles, orzo, fennel-citrus relish, preserved meyer lemon vinaigrette

- Atherton Lamb Loin, cauliflower-chickpea gratin, cardoons, black kale, natural jus

Sides (for the table)

- Shiitakes and Spinach
- Beets-goat cheese crème fraîche
- Fingerling Potatoes-béarnaise

Dessert Selections(Please Choose One)

- Soft Chocolate Pinot Cake, white and dark chocolate sauces, fresh raspberries, honeyed marscapone cheese

- Vanilla Bean Crème Brulle, huckleberry-citrus marmalade, hazelnut-cornmeal shortbread

Sunny Jin, Executive Chef, Tom Bean, Manager-Wine Director, Shelly Du Plessis, Pastry Chef

**Thursday, March 15**

**8:30 a.m.** Continental breakfast, The Board Room

**10 a.m.** Southern Oregon wines beginning to flex their muscle

Theme: Southern Oregon wines: Oregon's best kept secret

Guests: Michael Donovan, Roxy Ann Winery; Ruth Garvin, Cliff Creek Cellars.

Menu

Artisan Sandwiches

- turkey, sprouts, bacon, avocado and lemon aioli on levain
- grilled salmon wrap with arugula, rémoulade, cucumbers and tomato

Salads

- mixed green salad with rosemary-balsamic vinaigrette and herbed buttermilk dressing
- pasta salad with pesto, sun-dried tomato and pine nuts

Dessert

- assortment of freshly baked cookies: chocolate chip, snickerdoodle, chocolate dipped macaroons

**1 p.m.** Coach departs for Seattle

**5 p.m.** Coach arrives at Mercer Island Park & Ride.

**Contact information:**

Charles Humble, Oregon Wine Board
o: 503-228-8336
m: 503-799-9058
charles@oregonwine.org

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# Oregon Wine Board

Media Familiarity Tour
April 29-May 2, 2012

## Sunday, April 29

2 p.m. to 5 p.m. -- Unwine'd: Celebrate Oregon Wine (#oregonwine)
Left Bank Annex, Portland.

5 p.m. – Depart for Blue Goat restaurant via Grape Escape Tours

6:30 p.m. – Arrive Blue Goat, Amity

Focus: Meet Oregon's wine pioneers who will discuss the industry's origins.

6:30 p.m. – 7:30 p.m. Meet and greet, informal tasting of Oregon Chardonnay with industry founders.

Guests: Myron Redford and Vikki Wetle, Amity Vineyards; Pat Dudley and Ted Casteel, Bethel Heights Vineyard; Harry Peterson-Nedry, Chehalem Wine; David Adelsheim, Adelsheim Vineyards.

7:30 p.m. – Dinner with Oregon wine pioneers.

10:30 p.m. – Arrive The Allison Inn and Spa overnight.

## Monday, April 30

8 a.m. - 9:30 a.m. Breakfast and conversation at the Chef's Table.

10:00 a.m. -- Depart Allison for Montinore Vineyards via Grape Escape Tours.

10:45 a.m. – Arrive Montinore Vineyards.

Focus: Oregou's history and commitment to sustainably winemaking. Jeff Weissler of consciouswine.com presents an overview of Oregon's sustainable wine story and how winemaking has come full circle. Meet four winemakers producing biodynamic wines followed by a tastiug of biodynamically produced wines.

Guests – Rudy Marchesi, Montinore Estate; Doug Tunnell, Brick House Vineyards; Dag Johan Sundby, Johan Vineyards; Chris Williams, Brooks Winery.

11 a.m. -1:30 p.m. -- Lunch and tasting of biodynamic wines

1:30 p.m. –Depart for King Estate Winery via Grape Escape Wine Tours.

4:30 p.m. – Arrive King Estate Winery

Focus: A portfolio tasting of wine from Oregon's Southern Willamette Valley at the state's largest winery, following by dinner in the winery's award winning restaurant.

5:00 p.m. – Winery tour and portfolio tasting of South Willamette Valley wines in Barrel Room.

Guests – Steve Girard, Benton-Lane Winery; Quentin Ransone, King Estate Winery.

7 p.m. – Dinner at King Estate Winery with wines and winemakers from South Willamette

Overnight at King Estate Winery vineyard residences.

**Tuesday, May 1**

8 a.m. – 9:30 a.m. Breakfast at winery houses.

9 a.m. – Estate tour of King Estate Winery

11 a.m. Depart from King Estate Winery via Grape Escape WineTours.

12 p.m. Arrive Southern Oregon Wine Institute, Roseburg (#umpquawine)

Focus: Portfolio tasting of Umpqua Valley wines, regional overview and lunch with food and wine pairings.

1 p.m. -- Lunch and tasting of Umpqua Valley wines.

Guests – Earl Jones, Abacela Winery; Patrick Spangler, Spangler Vineyards and Winery; Terry Brandborg, Brandborg Vineyard and Winery; Chris Lake, program director Southern Oregon Wine Institute.

2:30 p.m. Depart SOWI via Grape Escape Wine Tours.

4 p.m. -- Arrive at McCully House Inn, Jacksonville (#soregonwines)

5:30 p.m. -- Depart for 38 Central, Medford.

6:15 p.m. – Arrive 38 Central, David Graham, owner and chief executive chef.

Focus: Portfolio tasting of Southern Oregon wines followed by dinner and wine pairings.

Guests – Barbara Steele, Cowhorn Vineyard and Garden; Herb Quady, Troon Vineyards and Quady North Winery.

10:30 p.m. -- Return to McCully House Inn, Jacksonville

**Wednesday, May 2**

8 a.m. Continental breakfast

9 a.m. Depart for Medford Airport

# Oregon Wine Media Tour Coverage

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## Press Tour Coverage

**On March 13,** the Oregon Wine Board hosted **nine wine writers** from Portland and the Seattle area for a three day familiarity tour to visit and discover Oregon. The tour was designed to showcase a diverse set of activities in an attempt to maximize the journalists time and provide the kind of content that will lead to positive and ongoing coverage of Oregon wine. The tour kicked off in the Columbia Gorge and took the writers though the city and into the Willamette Valley.

The initial tour prompted **seven** original stories, **all** of which had a very positive tone about Oregon wine.

Following the success of the first tour, the Oregon Wine Board hosted an additional **five wine writers**, four from the San Francisco area and one from Seattle, **April 29 – May 2** on a similar tour. The second tour started in Portland at the *Unwine'd: Celebrate Oregon Wine* grand tasting and took the writers on a wine adventure thought the state, ending in Medford.

Thus far there have been **six** original stories based on the tour. **Five** have had a Very Positive tone and **one** has had a Positive tone.

Attendees and Affiliation—First Tour:

- Kori Vorhees: *Wine Peeps*
- Cole Danhower: *NW Palate*
- Shannon Borg: *Seattle Magazine*
- Sean Sullivan: *Washington Wine Report*
- Erin Thomas: *SIP Northwest*
- Clive Pursehouse: *NW Wine Anthem*
- Jameson Fink: *Foodista.com*
- Peter Szymczak: *NW Palate*
- Yashar Shayan: *Freelance*

Attendees and Affiliation—Second Tour:

- Chris Nishiwaki: *Freelance Wine Journalist (Sip, Seattle Magazine, etc.)*
- Cyril Penn: *Wine Business Monthly*
- David Cohen*: Freelance food and wine writer - Southern CA Based: San Bernadino Sun, Ontario Daily Bulletin, Redlands Facs and Inland Empire Magazine*
- Paul Franson: *Freelance/Wine & Vines*
- Tina Caputo: *Editor in Chief - Vineyard and Winery Management*

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL**: http://jamesonfink.com/crispy-pork-belly-and-columbia-gorge-wines/
**Outlet**: jamesonfink.com
**Title:** Crispy Pork Belly and Columbia Gorge Wines
**Publication Date**: 03/13/2012
**Tone:** Very positive

Blog | Contact Me | About Jameson Fink

### Crispy Pork Belly and Columbia Gorge Wines

*Posted on:* March 13th, 2012 *by* Jameson

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Source: Uploaded by user via Jameson on Pinterest

**Nora's Table** in **Hood River**, Oregon was a charming setting for a tasting of wines from the **Columbia Gorge** region. Chef Kathy Watson served the pictured **crispy pork belly** with a refreshing apple and fennel salad with honey walnuts and salted caramel. Not only is Nora's Table notable for the food, but also for having the only wine list comprised solely of Columbia Gorge wines.

## Press Tour Coverage

**Media Type:** Blog
**Media Group**: Internet
**Article URL**: http://www.nwwineanthem.com/2012/03/stoller-vineyards-star-has-risen.html
**Outlet**: Northwest Wine Anthem
**Title**: Stoller Vineyards; A Star has Risen
**Publication Date**: 03/14/2012
**Tone:** Very positive

NORTHWEST Wine Anthem EST2011

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# Stoller Vineyards; A Star has Risen

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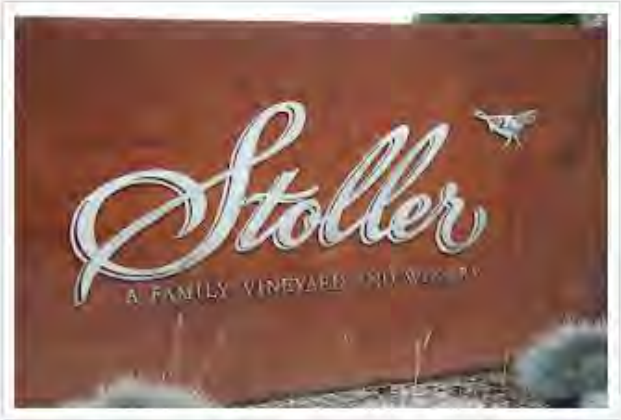


While she's not new to the scene, winemaker Melissa Burr is a rising star in the Willamette Valley, or maybe a legitimate star risen. Despite her youth, she's been at it quite awhile now with 2011 representing her ninth vintage. It's fair to say however that the sky is the limit for both Melissa and Stoller Vineyards.

Situated at the south end of the Dundee Hills Stoller Vineyards is planted on what was the largest turkey farm in Oregon until the late 1980s. The turkey farm gave way to vineyard rows planted in 1995 through 1997. Largely Pinot Noir which was sold to other winemakers. Harry Peterson-Nedry at Chehalem began making a proprietary label for Bill and Cathy Stoller early on and still produces a Stoller vineyard designate

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## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL**: http://jamesonfink.com/label-lust-a-duo-from-domaine-pouillon/
**Outlet**: jamesonfink.com
**Title:** Label Lust: A Duo from Domaine Pouillon
**Publication Date**: 03/14/2012
**Tone:** Very positive

JAMESON FINK

JAMESON FINK WINE

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### Label Lust: A Duo From Domaine Pouillon

*Posted on:* March 14th, 2012 *by* Jameson

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Two of my new favorite **wine labels** come from **Domaine Pouillon**. I was introduced to them at a lunch in Hood River, OR, highlighting the diversity and uniqueness of the **Columbia Gorge** wine region. As a coffee lover, the label for the 2009 **Syrah** "French Press" immediately caught my eye. You also gotta love a wine that is only available in magnums. The name recalls Winemaker **Alexis Pouillon**'s time working at legendary Chateauneuf du Pape producer **Chateau Beaucastel**. It is a Syrah not lacking in

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL**: http://www.foodista.com/blog/2012/03/14/drinking-a-27-year-old-oregon-pinot-noir-from-amity-vineyards
**Outlet**: foodista.com
**Title:** Drinking a 27-Year-Old Oregon Pinot Noir from Amity Vineyards
**Publication Date**: 03/14/2012
**Tone:** Very positive

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### Drinking a 27-Year-Old Oregon Pinot Noir from Amity Vineyards

Jameson Fink March 14, 2012

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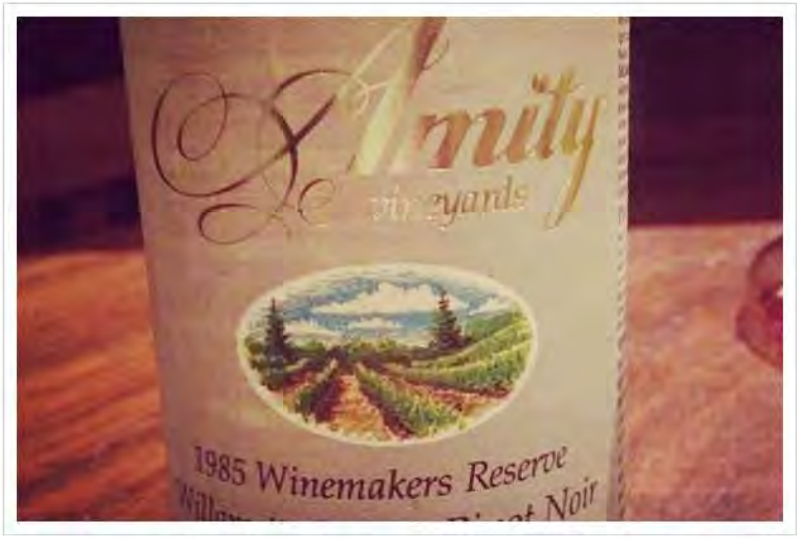


Elegance and charm are not the qualities that most people acquire while in their 20s, but at least you can find it in a bottle of **Amity Vineyards Oregon Pinot Noir**. I had the pleasure of tasting the **1985 Winemakers Reserve** from the **Willamette Valley** at a dinner where numerous legendary Pinot Noir producers were in attendance. Winemaker **Myron Redford**, pictured below, fastidiously decanted this fabulous wine. My thoughts were a wine of this age would need to be decanted not because it needed to "breathe" but only to separate the sediment from the wine. I figured it would need to be consumed immediately as post-uncorking it would be on a downward slope.

Boy was I wrong.

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL**: http://jamesonfink.com/oregon-sparkling-wine-shines-at-an-unforgettable-brunch/
**Outlet**: jamesonfink.com
**Title:** Oregon Sparkling Wine Shines at an Unforgettable Brunch
**Publication Date**: 03/15/2012
**Tone:** Very positive

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### Oregon Sparkling Wine Shines at an Unforgettable Brunch

*Posted on:* March 15th, 2012 *by* Jameson

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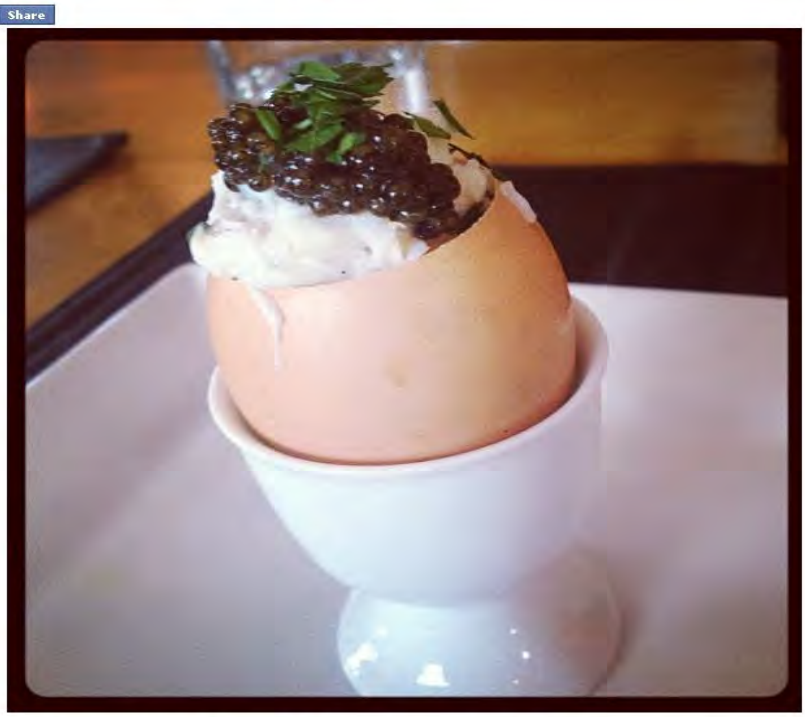

**The Black Walnut Inn and Vineyard** in Dundee, Oregon, was the setting for an unforgettable brunch made even more memorable by the presence of fantastic **Oregon sparkling wine**. Not only were the dishes superlatively prepared with quality and care by Chef Kris (owner and executive chef of **Renaissance Catering**) but the matches with the sparkling wines were sensational.

My three favorite bubbles from brunch:

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://www.foodista.com/blog/2012/03/20/the-cowhorn-syrah-is-pure-excitement-in-southern-oregon-wine
**Outlet**: Foodista.com
**Title:** The Cowhorn Syrah is Pure Excitement in Southern Oregon Wine
**Publication Date**: 03/20/2012
**Tone:** Very positive

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### The Cowhorn Syrah is Pure Excitement in Southern Oregon Wine

Jameson Fink March 20, 2012

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There is a lot of fascinating Oregon wine beyond **Willamette Valley Pinot Noir**, and the **Cowhorn Syrah** is a **Southern Oregon** wine that stands as a perfect example. If you are wondering about the name of the winery, it is a tribute to one of the practices of **biodynamic** farming that the winery employs. A holistic agricultural system (with a dash of mysticism) derived from the teachings of **Rudolph Steiner**, one part of biodynamics calls for cowhorns to be filled with dung and buried in the vineyards. This provides a nurturing preparation for the soil. Though biodynamics remains a favorite topic for all involved in the wine industry to debate, it's hard to argue against it when the

## Press Tour Coverage

**Media Type**: Online Version Paper
**Media Group**: Internet/Print
**Article URL:**
http://www.newsregister.com/article?articleTitle=seattle+gets+oregonized--1332373950--3022--
**Outlet**: Yamhill-Valley News Register
**Title:** Seattle Gets Oregonized
**Publication Date**: 03/21/2012
**Tone:** Very positive

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# Seattle gets Oregonized

MAR 21, 2012

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**By Karl Klooster**
**Of the News-Register**

When going frequently a good restaurant in Portland, diners interested in fine local wine will discover that even wine lists featuring a laudable lineup of Oregon offerings will also include a complement of wines from Washington. When dining out in Seattle, however, the reverse is rarely true.

Karl Klooster/News-Register
**Left to right: Rollin Soles, co-owner/winemaker of Argyle Winery, Buzz Kawders, owner of Domaine Meriwether, and Sean Sullivan of The Washington Wine Report chat during the Seattle media sparkling wine seminar at Black Walnut Inn.**

The same goes for supermarkets and wine shops. While Washington wines are prominently displayed by most Seattle retailers, you have to really scour the shelves to find any Oregon selections.

There is even an annual Taste Washington event in Portland sponsored by the Washington State Wine Commission. Held in the Pearl District every April, it features 75 wineries at a cost of $50 a head.

## Press Tour Coverage

**Media Type**: Magazine
**Media Group**: Internet/Print
**Article URL:**
http://www.winesandvines.com/template.cfm?section=news&content=100378&htitle=ANALYSIS%3A%20Chardonnay%20Meets%20Promise%20in%20Oregon&
**Outlet**: Wines and Vines
**Title:** ANALYSIS: Chardonnay Meets Promise in Oregon
**Publication Date**: 05/04/2012
**Tone:** Very positive

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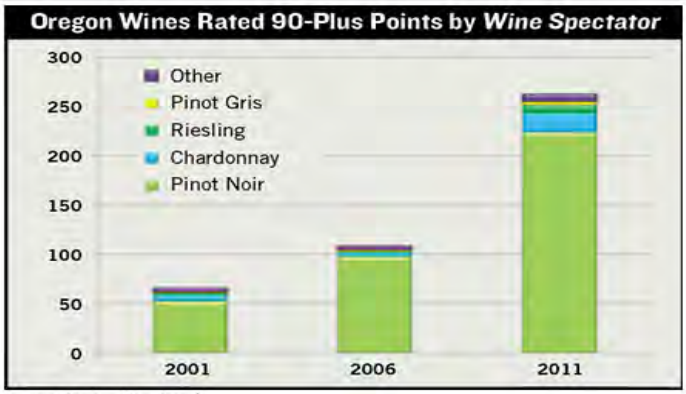
**ANALYSIS: Chardonnay Meets Promise in Oregon**

Group of winemakers say varietal wine is a natural partner in Pinot Noir country

by Paul Franson




Source: Oregon Wine Board

*Portland, Ore.*—Chardonnay is by far the most popular wine in America, and Chardonnay is the natural partner to Pinot Noir around the world—except in Oregon. Chardonnay would seem a natural fit for Oregon with its Burgundian climate, yet growers in Oregon long ago chose Pinot Gris as their favored white wine.

The numbers tell the story:
- 12,560 acres Pinot Noir
- 2,590 acres Pinot Gris
- 950 acres Chardonnay

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://kirkland.patch.com/articles/washington-wineries-compete-with-best-from-around-the-world-875f2ff5
**Outlet**: Kirkland Patch
**Title:** Cork Dork: Washington Wineries Compete with Best in the World
**Publication Date**: 05/04/2012
**Tone:** Very positive

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CORK & FORK DORK
By Chris Nishiwaki Email the author May 4, 2012

Business, Restaurant Reviews, The Neighborhood Files

### Cork Dork: Washington Wineries Compete with Best in the World

The Sauvignon Blanc from Kirkland's Cedergreen Cellars makes the 2012 'Oyster Awards' list.

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**LAST WEEK** I embarked on a road trip to Oregon like I hadn't done since my college days. Back then I would travel to Eugene to watch my Huskies destroy the University of Oregon Ducks in football.

For the record, the University of Washington has won more college football national championships than Oregon, with one. Last Saturday, I stayed in Seattle to watch the University of Washington spring football game. The defense made me optimistic about the 2012 season. The offense was downright offensive and made me want to drink Oregon Pinot Noir. That would have to wait a day.

PHOTOS (2)

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On Sunday morning I flew to Portland, where our Oregon odyssey began. Crammed in a van, we covered Oregon wine country over the next four days from the Willamette Valleyto the Rogue Valley almost to the California border.

Four writers from California, yours truly as the only representative from Washington, and the Oregon state wine industry each professed the virtues of the various wine regions. The preference and bias for wines, neatly falling by local allegiance, were as clearly defined as the state borders.

## Press Tour Coverage

**Media Type**: Magazine
**Media Group**: Internet/Print
**Article URL:**
http://www.winesandvines.com/template.cfm?section=news&content=100487&htitle=Oregon%27s%20Original%20Wine%20Country%20Reborn&
**Outlet**: Wines and Vines
**Title:** Oregon's Original Wine Country Reborn
**Publication Date**: 05/08/2012
**Tone:** Positive

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**Oregon's Original Wine Country Reborn**

Southern Oregon Wine Institute hopes to jumpstart local wine industry

by Paul Franson

*SOWI contains classrooms, a working commercial winery, incubator space for new wineries and a tasting room (above).*

*Roseburg, Ore.*—The Southern Oregon Wine Institute in the heart of Southern Oregon's wine country is one of the newest college programs for training people to work in the wine business.

It was established in 2005 at Umpqua Community College in Roseburg as the first viticulture and enology program in Oregon outside Willamette Valley.

Ironically, the first commercial vineyards in Oregon were in the generally warmer southern part of the state, though the cooler Willamette Valley to the north now contains far more wineries and gets more attention.

The new center was established to support one of the most promising segments of the depressed region, where forestry has been restricted by new regulations.

**Southern Oregon Wine Marketing and Sales Conference**

The third annual Southern

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:**
http://www.winereviewonline.com/Tina_Caputo_QA_Harry_Peterson_Nedry.cfm
**Outlet**: Winesreviewonline.com
**Title:** Q & A: Harry Peterson-Nedry of Chehalem Winery
**Publication Date**: 05/08/2012
**Tone:** Very positive

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### Q & A: Harry Peterson-Nedry of Chehalem Winery

**By Tina Caputo**
May 8, 2012

Printable Version
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When talking about the history of Oregon wines, certain names inevitably come up: Myron Redford of Amity Vineyards, David Adelsheim of Adelsheim Vineyard, David Lett of Eyrie Vineyards and Dick Erath of Erath Winery. These pioneering vintners -- among others -- laid the foundation in the late 1960s and `70s for the winemakers who followed.

One such winemaker to benefit from the founders' wisdom -- and mistakes -- was Harry Peterson-Nedry, founder of Chehalem winery (pronounced chuh-HAY-lum) in the Willamette Valley. With degrees in chemistry and English, Harry's first career was in high-tech manufacturing. But as many before him have discovered, a wine hobby can have life-altering effects.

In 1980 Harry founded Ridgecrest Vineyards, the first vineyard to be developed in Oregon's newly designated Ribbon Ridge AVA, and in 1982 he began planting the site to Pinot Noir and Chardonnay. After his first harvest in 1985, he began selling the grapes from his 55-acre vineyard to wineries including Yamhill Valley Vineyards and Adelsheim.

Harry founded Chehalem winery in 1990, named for a local Calapooia Indian word meaning "gentle land" or "valley of flowers." Within five years, he had expanded the winery's estate holdings to include partnerships in Corral

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://www.winebusiness.com/blog/
**Outlet**: Wine Business Monthly
**Title:** It's Oregon Wine Month
**Publication Date**: 05/13/2012
**Tone:** Very positive

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**Sunday, May 13, 2012**

### It's Oregon Wine Month

by Cyril Penn | May 13, 2012 | 3:00 PM

Governor John Kitzhaber signed a proclamation designating May 2012 as Oregon Wine Month to promote Oregon wine and recogize how wonderful it is. It's the first time there's been an "Oregon Wine Month" since 1989 when Neil Goldschmidt was Governor. For a time, Goldschmidt had his own vineyard and winery.

Oregon Wine Month includes retail, restaurant and consumer events and promotions. It started with a consumer event in Portland, "Unwine'd: Celebrating Oregon Wine." I was there with small group for a quick media tour with the Oregon Wine Board. We covered a lot of ground in three days.

It's been many years since Oregon wineries came together for such a comprehensive tasting and the industry has evolved. The tasting included 87 producers representing 14 AVAs.

The big tasting seemed to be a hit. More than a thousand people showed up and there looked to be ample local media coverage. And they didn't run out of great food.

I was surprised by the range of wines at the tasting because they weren't all Pinot Noir. There was more diversity than I anticipated, from unusual varietals to ripe Cabernet Sauvignon from Southern Oregon.

## Press Tour Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://winepeeps.com/2012/05/14/oregon-wine-beyond-pinot-noir/
**Outlet**: Wine Peeps
**Title:** Oregon Wine: Beyond Pinot Noir
**Publication Date**: 05/14/2012
**Tone:** Very positive

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**Welcome!**

Wine Peeps is an independent wine blog dedicated to helping you get the most bang for your buck in wine. We do this through blind tastings of wine from around the world and calculations of Quality-to-Price Ratios (QPRs). Because we are located in Seattle, Washington, we have a special interest in Washington State wines.

In the course of our wine journey, we also enjoy numerous wine-related activities such as traveling throughout wine country, visiting vineyards, reading wine books, and trying wine gadgets, all of which we share with our readers.

*This site is for persons of legal drinking age.*

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Wine Tasting Dinner: 2008 Washington Syrah
Wine Word of the Week: Bottling
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# Oregon Wine: Beyond Pinot Noir

**By** Kori ~ May 14th, 2012.

Oregon ranks third in the number of wineries and fourth in wine production in the United States. In its relatively short 40-year history, the Oregon wine industry has evolved into a world-class wine region. Today, Oregon boasts over 400 wineries and 16 AVA's (American Viticultural Areas). With those AVA's found in both warm and cool climates, Oregon winemakers are able to produce wines from over 70 different grape varieties.

Pinot Noir is the variety that propelled Oregon onto the worldwide wine stage and is still what many people think of when it comes to Oregon wine. Over 12,000 acres of vineyards in Oregon are planted to Pinot Noir and production of Pinot Noir is over three times the next leading variety, Pinot Gris. Nevertheless, Oregon wine is far from a one-trick pony.

During my recent media tour to explore Oregon wine country, I had the opportunity to try many different Oregon wines. Beyond Pinot Noir, which they continue to do well, I was particularly impressed with the quality of sparkling wines and Chardonnay that Oregon is producing.

Given that Oregon, and particularly the Willamette Valley, is predominately a cool climate growing area that has proven to grow Pinot Noir well, it is no surprise that Chardonnay is showing signs of greatness there as well. The leading white variety in the world's leading Pinot Noir growing region of Burgundy, France, is none other than Chardonnay. The two varieties seem to go hand in hand. You may be wondering then why we haven't seen more Chardonnay out of Oregon in the past, with many wineries instead focusing on Pinot Gris as their leading white variety. Well, according to Rollin Soles, founder/winemaker of Argyle Winery in Dundee, Oregon, the problem was that initially the wrong Chardonnay clone was planted in Oregon. After years of trial and error and experimentation, a number of those vines have been pulled out and a Chardonnay clone better suited for Oregon's terroir has been planted. As a result, better Chardonnay wines are finally making an impact in the marketplace.

Two Chardonnay wines that I especially enjoyed during my trip were the 2009 Cameron Abbey Ridge Chardonnay [Quality: 4.5, QPR: 4, Price: $55] and the 2008 Ponzi Reserve Chardonnay [Quality: 4, QPR: 4, Price: $30].

# Unwine'd:
# Celebrate Oregon Wine
# Coverage

OREGON
WINE

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## Event Coverage

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**Blog** — All of Oregon is on Display: Unwine'd Celebrate Oregon Wine, *Northwest Wine Anthem*..... 6
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**Magazine** — Unwine'd Kicks off Oregon Wine Month, Oregon *Wine Press*.....8
**Blog** — Wine Events Pouring April and May, *Travel Oregon*.....9
**Blog** — Wine pick: Unwine'd celebrates Oregon wine at Left Bank Annex, *The Oregonian*.....10
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**Blog** — Unwine'd Rewind: Celebrate Oregon Wine Indeed!, *Northwest Wine Anthem*.....15-16
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**Blog** — Fun, Fun, Fun!! Unwine'd, Oregon Style!!, *The Wine Guy*.....17-18
**Magazine** — ANALYSIS: Chardonnay Meets Promise in Oregon, *Wines and Vines*..18-19
**Blog** — Cork Dork: Washington Wineries Compete with Best in the World, *Kirkland Patch*.....19-20
**Blog** — Celebrating Oregon Wine, *The Oregon Winette*.....20-21
**Blog** — It's Oregon Wine Month, Wine Business Monthly.....22

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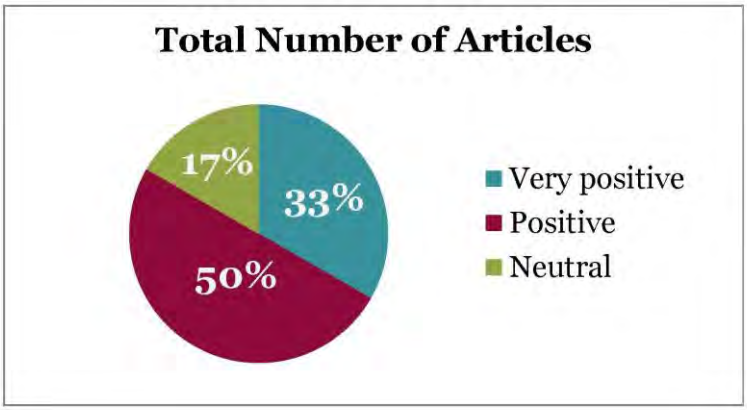
## Event Coverage

### Re-Cap By The Numbers

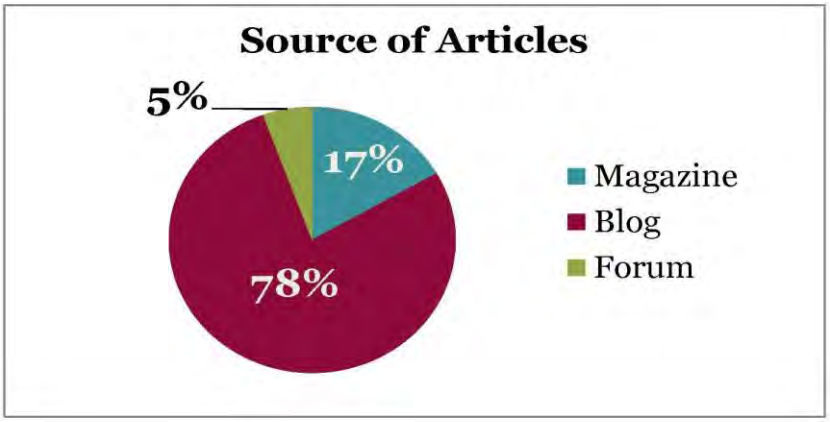
More than **30** media people including print and on-line publications (trade and commercial), wine and food bloggers, radio and television attended.

**8** stories were published about Unwine'd leading up to the event. Of those, **5** had a positive tone and **3** had a neutral tone.

**10** stories have been published since the event, with more coverage in the works. Of the published stories, **6** had a very positive tone and **4** had a positive tone.




Of the **18** original stories, **14** were blog posts, **3** were magazine articles and **1** was forum thread that lead into and out of the event.



## Event Coverage

**140** members of the trade attended the early hour and included sommeliers, retailers, grocery, restaurant staff and distributors.

In total **720** guests attended the event throughout the day. With vendors, staff and volunteers there were **1040** people at the event. Guests were lined up around the building starting at 2:30pm for the 3:00pm opening.

**13** restaurants from around the state of Oregon participated with gourmet bites sourced from local products including Anderson Ranch lamb, Carlton Farms pork and shrimp from the Oregon Trawl Association. The Oregon Cheese Guild had a line at their table throughout the entire event and showcased a variety of Oregon made artisan cheeses.

**87** Oregon wineries participated in the event pouring more than **350** wines and showcasing **21** varietals, not including blends including:

- Albarino
- Cabernet Franc
- Cabernet Sauvignon
- Chardonnay
- Gruner Veltliner
- Gewurztraminer
- Malbec
- Merlot
- Muller Thurgau
- Nebbiolo
- Pinot blanc
- Pinot gris
- Pinot noir
- Riesling
- Roussanne
- Sauvignon Blanc
- Syrah
- Tempranillo
- Vermentino
- Viognier
- Zinfandel

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## Event Coverage

**Media Type**: Magazine
**Media Group**: Internet/Print
**Article URL**: http://www.sipnorthwest.com/2012/03/unwined-grand-tasting-kicks-off-oregon-wine-month/
**Outlet**: SIP Northwest
**Title:** Unwine'd grand tasting kicks off Oregon Wine Month
**Publication Date**: 03/27/2012
**Tone:** Positive

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## Event Coverage

**Media Type:** Blog
**Media Group**: Internet
**Article URL**: http://www.nwwineanthem.com/2012/03/all-of-oregon-is-on-display-unwined.html
**Outlet**: Northwest Wine Anthem
**Title:** All of Oregon is on Display: Unwine'd Celebrate Oregon Wine
**Publication Date**: 03/28/2012
**Tone:** Positive

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# All of Oregon is on Display: Unwine'd Celebrate Oregon Wine

6:21 AM CLIVE PURSEHOUSE NO COMMENTS

Governor John Kitzhaber declared May of 2012 to be "Oregon Wine Month," so it's appropriate to kick it off with an event on April 29th. Portland's Left Bank Annex will host a tasting event for Oregon wine unlike any other, showcasing one hundred wineries representing the variety of the state, from the Columbia Gorge's Phelps Creek Vineyards to the far reaches of Southern Oregon and Roxy Ann. Oregon wine is more than just Pinot Noir and it's more than just terroir driven perfection, it's a huge business for the state. The wine industry in Oregon is 13,500 jobs at 850 vineyards over 20,000 acres and 420 wineries. It's a big deal. It's a $2.7 billion dollar a year big deal.

What should be gleaned from all those numbers is that it's time for Oregon to not just embrace its wine industry but to celebrate it. So the Oregon Wine Board in cooperation with some fantastic partners is helping us do just that with the Unwine'd: Celebrate Oregon Wine event.

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## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL**: http://tabletalkradio.net/dining-out/pdx-dining-sense-of-places/
**Outlet**: Table Talk
**Title:** PDX Dining – Sense of Place(s)
**Publication Date**: 03/30/2012
**Tone:** Neutral

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# PDX Dining – Sense of Place(s)

March 30, 2012 By Chris Nishiwaki 2 Comments

Guest Post by Chris Nishiwaki

Enjoy PDX dining at Bluehour in The Pearl

As I write this missive on **Unwine'd: Celebrate Oregon Wine** I am adding this unusual spelling for this unique food and wine bacchanalia to my spell check dictionary as I plan on writing about it extensively leading up to the April 29 festivities at Left Bank Annex in Portland. You should add it to your calendar.

In preparation for Unwine'd, following is the first of two parts previewing the featured culinary offerings from an array of Oregon's finest culinary artists. The first part focuses on Portland-based restaurants and caterers. The second part will focus on businesses outside Portland.

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## Event Coverage

**Media Type**: Magazine
**Media Group**: Internet/Print
**Article URL**:
http://oregonwinepress.com/article?articleTitle=unwine%26rsquo%3Bd+kicks+off+oregon+wine+month--1333227421--1141--wine_news
**Outlet**: Oregon Wine Press
**Title:** Unwine'd Kicks off Oregon Wine Month
**Publication Date**: 04/01/2012
**Tone:** Positive

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# Unwine'd Kicks Off Oregon Wine Month

***By Wine Press Staff***

Earlier this year, Gov. John Kitzhaber declared May Oregon Wine Month. Kicking off the 31 days of Oregon wine, the Oregon Wine Board will host the state's largest statewide consumer wine tasting to date: Unwine'd: Celebrate Oregon Wine.

Hosted at the Left Bank Annex, April 29, 3 to 6 p.m., the tasting will host 100 wineries from every region in the state.

"Oregon's wine industry has come a long way since we last celebrated Oregon Wine Month and attempted a statewide tasting like Unwine'd," said Michael Donovan, OWB chairman. "While showcasing our state's diversity, the event will allow consumers to meet and talk to Oregon's artisan winemakers. This is an opportunity for Northwest wine consumers to sample the incredible quality of Oregon wine from every region under one roof."

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## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL**: http://traveloregon.com/trip-ideas/oregon-stories/wine-events-pouring-april-and-may/
**Outlet**: Travel Oregon
**Title:** Wine Events Pouring April and May
**Publication Date**: 04/5/2012
**Tone:** Neutral

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# Wine Events Pouring April and May

by Eileen Garvin –April 5th, 2012

Uncork Oregon Wine Month.

You know your state is serious about wine when the Governor declares a wine month. We'll thank you for that, Gov. Kitzhaber, this May. And to get things started a bit early, Oregon kicks off **Unwine'd: Celebrate Oregon Wine** on April 29.

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the Oregon Wine Board, Unwine'd celebrates the state's vino diversity by showcasing 100

## Event Coverage

**Media Type**: News Paper
**Media Group**: Print/Internet
**Article URL:**
http://www.oregonlive.com/foodday/index.ssf/2012/04/wine_pick_unwined.html
**Outlet**: The Oregonian
**Title:** Wine pick: Unwine'd celebrates Oregon wine at Left Bank Annex
**Publication Date**: 04/16/2012
**Tone:** Neutral

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# Wine pick: Unwine'd celebrates Oregon wine at Left Bank Annex

Published: Monday, April 16, 2012, 3:00 PM

By Katherine Cole, Special to The Oregonian
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I'm feeling a bit forlorn this spring because the Portland Indie Wine & Food Festival is taking a year off (its former venue has been leased to a long-term tenant and the organizers are regrouping). This gathering of small local producers was always a great way to scope out new labels and hatch an attack plan for Memorial Day weekend in wine country.

But on the bright side, we now have **Unwine'd**, an opportunity to taste wines from 100 Oregon vignerons, including the sorts of small labels I used to discover at the Indie event. For example: **Aberrant Cellars**. Former wine importer Eric Eide approaches oenology with a painstaking attention to detail, as evidenced by his thrilling debut releases from the 2009 vintage, which are available in local wine shops through Casa Bruno.

**Unwine'd:** Celebrate Oregon Wine: 3-6 p.m. Sunday, April 29; $50 ticket includes tasting, wine glass and nibbles; Left Bank Annex, 101 N. Weidler St.; 503-228-8336

## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL**: http://consciouswine.com/oregon-wine-board-hosts-unwined/
**Outlet**: ConsciousWine
**Title:** Oregon Wine Board Hosts "Unwine'd"
**Publication Date**: 04/19/2012
**Tone:** Positive

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UN 2012 CELEBRATE OREGON WINE WINE'D 04 APRIL 29 29

Oregon Wine Board Hosts "Unwine'd"

May is **Oregon Wine Month**, and the **Oregon Wine Board** is welcoming it in style with "**Unwine'd**", a major event in Portland on Sunday, April 29th. More than 85 wineries and over a dozen restaurants will be showcasing extraordinary wine and food, casting a spotlight on the incredible breadth and depth of Oregon's fertile, vibrant landscape.

Unwine'd is being held at Portland's **Left Bank Annex**, from 3pm-6pm. Trade and Media early access is from 2pm-3pm. Tickets are just $50 and can be purchased through the Oregon Wine Board's **website**.

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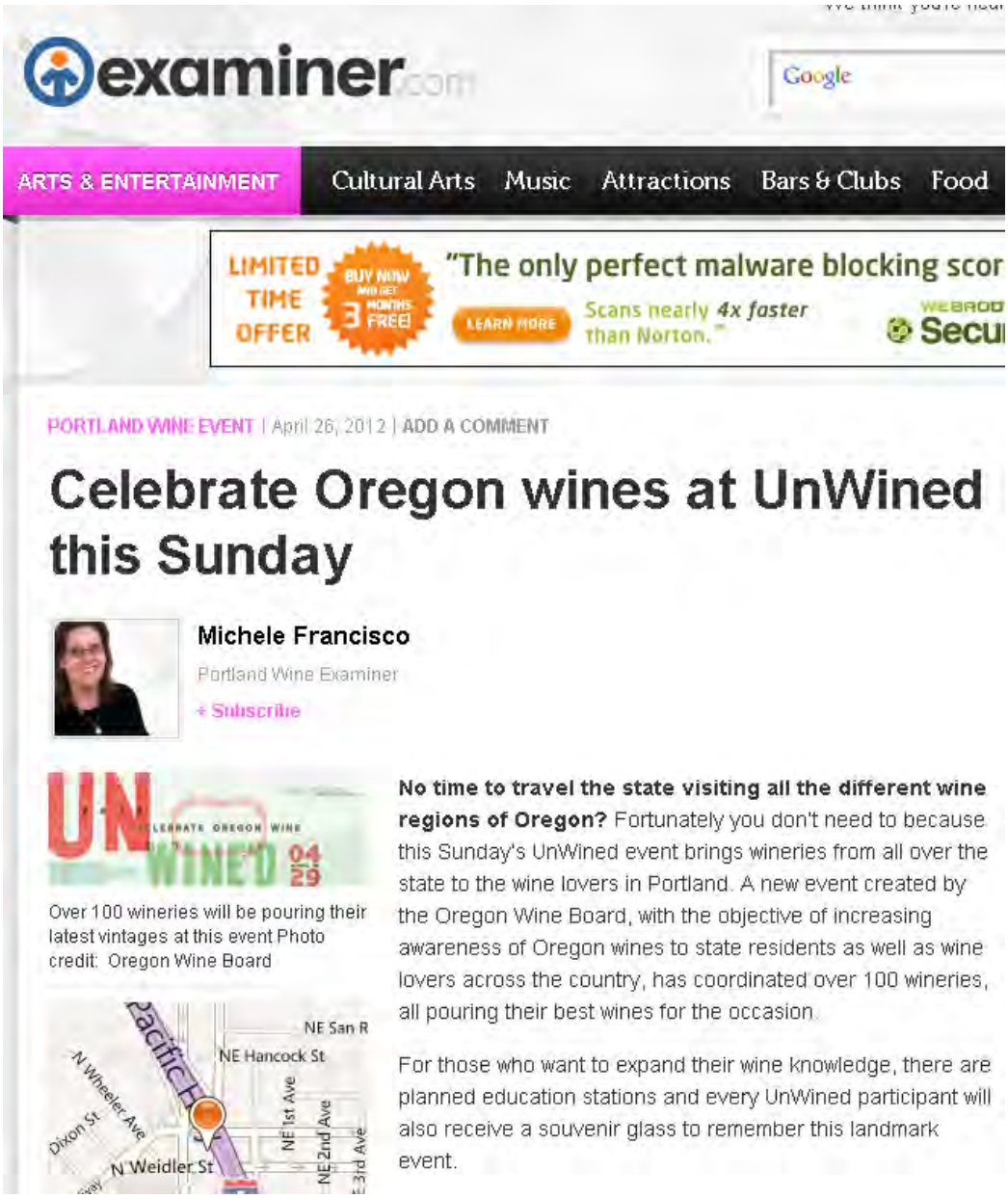
## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://www.examiner.com/article/celebrate-oregon-wines-at-unwined-this-sunday
**Outlet**: The Examiner
**Title:** Celebrate Oregon wines at Unwine'd this Sunday
**Publication Date**: 04/26/2012
**Tone:** Positive



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# Celebrate Oregon wines at UnWined this Sunday

Michele Francisco
Portland Wine Examiner
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UNWINED CELEBRATE OREGON WINE 04 29

Over 100 wineries will be pouring their latest vintages at this event Photo credit: Oregon Wine Board



**No time to travel the state visiting all the different wine regions of Oregon?** Fortunately you don't need to because this Sunday's UnWined event brings wineries from all over the state to the wine lovers in Portland. A new event created by the Oregon Wine Board, with the objective of increasing awareness of Oregon wines to state residents as well as wine lovers across the country, has coordinated over 100 wineries, all pouring their best wines for the occasion.

For those who want to expand their wine knowledge, there are planned education stations and every UnWined participant will also receive a souvenir glass to remember this landmark event.

## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://www.southernoregonwineblog.com/2012/05/unwined-unfolds-with-success.html
**Outlet**: Southern Oregon Wine Blog
**Title:** Unwine'd Unfolds with Success
**Publication Date**: 05/01/2012
**Tone:** Very positive

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MAY 1, 2012

### UnWine'd Unfolds with Success

Oregon showed its might Sunday with 100 producers coming together to proudly kick off May's Oregon Wine Month with the inaugural UnWine'd event. It has been decades since the Oregon Wine Board has sponsored a collective tasting and with over 800 attendees, I'd say it was a massive success. Not only was the two-story Left Bank Annex full of wine enthusiasts, it was also full of excitement for the quality and creativity coming from our state.

The response for Southern Oregon wines was overwhelming popular. I manned the Southern Oregon Winery Association table for an hour and my hook to bring people in was "Which Southern Oregon wines have you enjoyed today?" Everyone had answers! And the twitter-verse was going crazy too:

## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://taryn-sipsandthecity.blogspot.com/2012/05/sips-on-road-oregon-unwined-portland-or.html
**Outlet**: Sips & The City
**Title:** Sips on the Road: Oregon Unwine'd - Portland, OR
**Publication Date**: 05/01/2012
**Tone:** Positive

SIPS & THE CITY

MY ADVENTURES IN TRYING ALL THE BEST OF THE VINE

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TUESDAY, MAY 1, 2012

### Sips on the Road: Oregon Unwine'd - Portland, OR

As I walked into the first ever Oregon Unwine'd event at the Left Bank Annex (@leftbankannex) in Portland, I must have looked like a combination of a kid in a candy store and a deer in the headlights. I had no idea where to even start. My journey in wine has so far kept me very much in Washington (save for a few trips here and there) and Oregon is a region I have not had a chance to really explore. I can honestly say I think I can count on just two hands how many of the 100 wineries in attendance I had tasted before. This created a unique opportunity for me as I set about my tasting: no bias. Since I hadn't really explored the regions of Oregon wine country at all, I really had no preference when it came to

WHO AM I?

TARYN

I love wine. wine advent love passing great wine finds to others. Enjoy!

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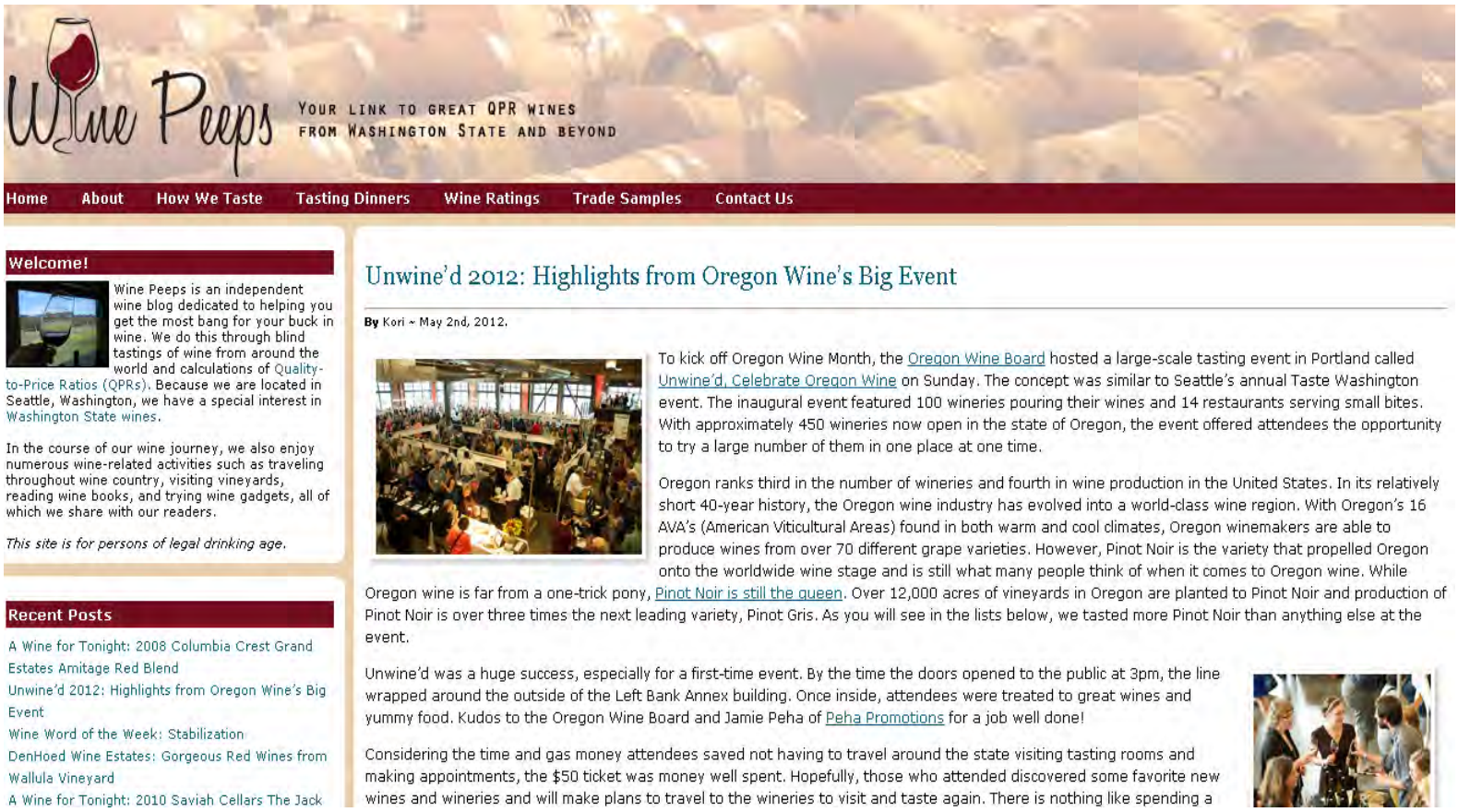
## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://winepeeps.com/2012/05/02/unwined-2012-highlights-from-oregon-wines-big-event/
**Outlet**: Wine Peeps
**Title:** Unwine'd 2012: Highlights from Oregon Wine's Big Event
**Publication Date**: 05/02/2012
**Tone:** Very positive



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**Welcome!**

Wine Peeps is an independent wine blog dedicated to helping you get the most bang for your buck in wine. We do this through blind tastings of wine from around the world and calculations of Quality-to-Price Ratios (QPRs). Because we are located in Seattle, Washington, we have a special interest in Washington State wines.

In the course of our wine journey, we also enjoy numerous wine-related activities such as traveling throughout wine country, visiting vineyards, reading wine books, and trying wine gadgets, all of which we share with our readers.

*This site is for persons of legal drinking age.*

**Recent Posts**

A Wine for Tonight: 2008 Columbia Crest Grand Estates Amitage Red Blend
Unwine'd 2012: Highlights from Oregon Wine's Big Event
Wine Word of the Week: Stabilization
DenHoed Wine Estates: Gorgeous Red Wines from Wallula Vineyard
A Wine for Tonight: 2010 Saviah Cellars The Jack

### Unwine'd 2012: Highlights from Oregon Wine's Big Event

**By** Kori ~ May 2nd, 2012.

To kick off Oregon Wine Month, the Oregon Wine Board hosted a large-scale tasting event in Portland called Unwine'd, Celebrate Oregon Wine on Sunday. The concept was similar to Seattle's annual Taste Washington event. The inaugural event featured 100 wineries pouring their wines and 14 restaurants serving small bites. With approximately 450 wineries now open in the state of Oregon, the event offered attendees the opportunity to try a large number of them in one place at one time.

Oregon ranks third in the number of wineries and fourth in wine production in the United States. In its relatively short 40-year history, the Oregon wine industry has evolved into a world-class wine region. With Oregon's 16 AVA's (American Viticultural Areas) found in both warm and cool climates, Oregon winemakers are able to produce wines from over 70 different grape varieties. However, Pinot Noir is the variety that propelled Oregon onto the worldwide wine stage and is still what many people think of when it comes to Oregon wine. While Oregon wine is far from a one-trick pony, Pinot Noir is still the queen. Over 12,000 acres of vineyards in Oregon are planted to Pinot Noir and production of Pinot Noir is over three times the next leading variety, Pinot Gris. As you will see in the lists below, we tasted more Pinot Noir than anything else at the event.

Unwine'd was a huge success, especially for a first-time event. By the time the doors opened to the public at 3pm, the line wrapped around the outside of the Left Bank Annex building. Once inside, attendees were treated to great wines and yummy food. Kudos to the Oregon Wine Board and Jamie Peha of Peha Promotions for a job well done!

Considering the time and gas money attendees saved not having to travel around the state visiting tasting rooms and making appointments, the $50 ticket was money well spent. Hopefully, those who attended discovered some favorite new wines and wineries and will make plans to travel to the wineries to visit and taste again. There is nothing like spending a

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://www.nwwineanthem.com/2012/05/unwined-rewind-celebrate-oregon-wine.html
**Outlet**: NW Wine Anthem
**Title:** Unwine'd Rewind: Celebrate Oregon Wine Indeed!
**Publication Date**: 05/02/2012
**Tone:** Very positive

Event Coverage

NORTHWEST Wine Anthem EST 2011

HOME | OUR PHILOSOPHY » | WHO WE ARE » | CONTACT US » | NORTHWEST WINE

# UnWine'd Rewind: Celebrate Oregon Wine Indeed!

6:21 AM MEGAN 3 COMMENTS

This past Sunday, the Oregon Wine Board hosted *UnWine'd: Celebrate Oregon Wine* in Portland's industrial-chic Left Bank Annex. The elaborate tasting featured 80+ wineries throughout the Oregon AVAs, and a heaping handful of restaurant vendors, delicious accoutrements in-tow. This grand tasting served as the kickoff event for Oregon Wine Month, which continues through the month of May and culminates in the ever-popular Memorial Day weekend wine country open house.

With my free time rarely being spent outside of the immediate Portland area, I am ecstatic when wine country comes to me. Tasting book and floorplan in-

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FROM DAY

▼ 2012 (51)

▼ May (1)

UnWine'd Wine I

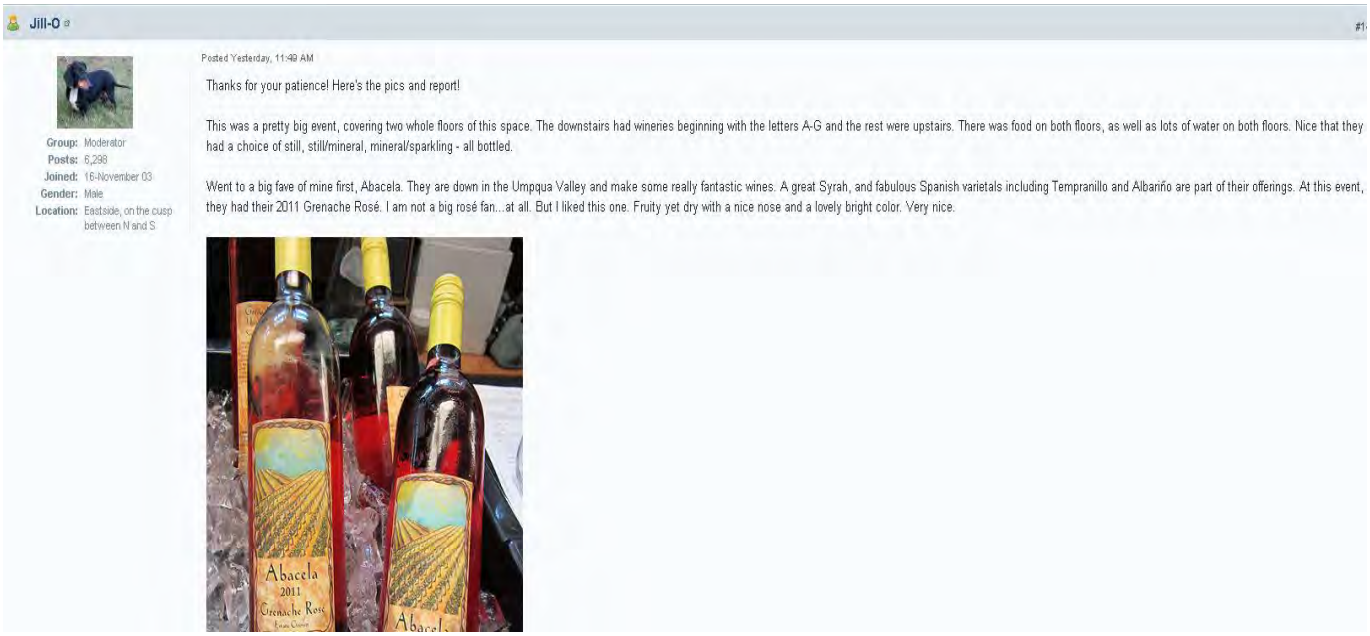
► April (14

► March (1

► February

## Event Coverage

**Media Type**: Forum
**Media Group**: Internet
**Article URL** http://portlandfood.org/topic/12896-unwined-celebrate-oregon-wine/page__pid__157772#entry157772
**Outlet**: Portlandfood.org
**Title:** Unwine'd
**Publication Date**: 05/02/2012
**Tone:** Positive



Jill-O

Group: Moderator
Posts: 6,298
Joined: 16-November 03
Gender: Male
Location: Eastside, on the cusp between N and S

Posted Yesterday, 11:49 AM

Thanks for your patience! Here's the pics and report!

This was a pretty big event, covering two whole floors of this space. The downstairs had wineries beginning with the letters A-G and the rest were upstairs. There was food on both floors, as well as lots of water on both floors. Nice that they had a choice of still, still/mineral, mineral/sparkling - all bottled.

Went to a big fave of mine first, Abacela. They are down in the Umpqua Valley and make some really fantastic wines. A great Syrah, and fabulous Spanish varietals including Tempranillo and Albariño are part of their offerings. At this event, they had their 2011 Grenache Rosé. I am not a big rosé fan...at all. But I liked this one. Fruity yet dry with a nice nose and a lovely bright color. Very nice.



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**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://thewineguy40.blogspot.com/2012/05/fun-fun-fun-unwined-oregon-style.html
**Outlet**: The Wine Guy
**Title:** Fun, Fun, Fun!! Unwine'd, Oregon Style!!
**Publication Date**: 05/03/2012
**Tone:** Positive

## Event Coverage

MAY 3

### Fun, Fun, Fun!! Unwine'd, Oregon Style!!

Greetings!!

Okay, so last Sunday I was SO fortunate to get to go to Unwine'd, the Oregon wine festival in Portland. What a day that was!! I am thankful to those that put it on -- I had a GREAT time!!

So, I live up in Bellevue, Washington, and the day started with me taking the train down to Portland. If you have taken the train before, I recommend it!! It was a relaxing way to travel, and I enjoyed the chat time with my lovely and talented assistant!! The only drawback of the train is the company--at times. Unfortunately, on both the ride down and the return ride we had the unfortunate pleasure of sitting in the car with some of the drunkest and rudest people I have known. Once we moved cars, and it was okay to do so, we had a wonderful time.

Portland:
We got down there early and walked around the town a bit. The city is nice, and very accessible by foot. We had brunch / lunch at Pazzo in downtown Portland and all I can say is that the service was super, the food delicious and price very reasonable. Once we left the restaurant we walked up to the Portland Saturday Market. Although it was a Sunday, I was glad the market was still open. The shops and stalls were filled with interesting gadgets and well made handicrafts. I loved the tie-dye, but as we were heading up to a wine event, tie-dye was probably not the best attire choice. I had never heard so much Tom Petty--except on his greatest hits album--than I did by the three live bands playing. Maybe it was just coincidence, or maybe it is Portland, either way it was fun.

The Event:
Unwine'd was held in the Leftbank Annex, just across the river from downtown Portland. It was a wonderful two story structure that had quite a bit of room. The event itself was quite crowded, but that is good news for the wine industry!! There were approximately 100 wineries represented with a wide range of reds and whites being served. Like most of these events, I really try to hit wineries I have not yet tried, and in this case that was pretty easy, since I have really only been to Oregon once for a couple of days. The first time through we did only whites, and I was able to try a new varietal--Troon Vineyard's 2011 Vermentino. Light, refreshing, a nice summer white that I will certainly be looking for / ordering soon!!

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**Media Type**: Magazine
**Media Group**: Internet/Print
**Article URL:**
http://www.winesandvines.com/template.cfm?section=news&content=100378&htitle=ANALYSIS%3A%20Chardonnay%20Meets%20Promise%20in%20Oregon&
**Outlet**: Wines and Vines
**Title:** ANALYSIS: Chardonnay Meets Promise in Oregon
**Publication Date**: 05/04/2012
**Tone:** Very positive

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## Event Coverage

WINES & VINES

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2010
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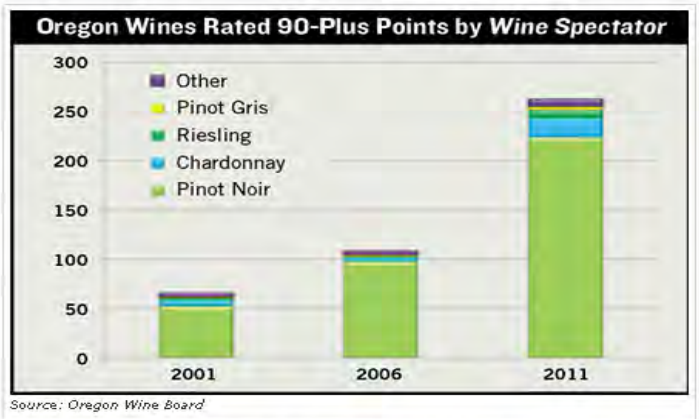
05.04.2012

**ANALYSIS: Chardonnay Meets Promise in Oregon**

Group of winemakers say varietal wine is a natural partner in Pinot Noir country

by Paul Franson




*Portland, Ore.*—Chardonnay is by far the most popular wine in America, and Chardonnay is the natural partner to Pinot Noir around the world—except in Oregon. Chardonnay would seem a natural fit for Oregon with its Burgundian climate, yet growers in Oregon long ago chose Pinot Gris as their favored white wine.

The numbers tell the story:
- 12,560 acres Pinot Noir
- 2,590 acres Pinot Gris
- 950 acres Chardonnay

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**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://kirkland.patch.com/articles/washington-wineries-compete-with-best-from-around-the-world-875f2ff5
**Outlet**: Kirkland Patch
**Title:** Cork Dork: Washington Wineries Compete with Best in the World
**Publication Date**: 05/04/2012
**Tone:** Very positive

## Event Coverage

KirklandPatch 51°

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Update: Like Kirkland Patch? Like us on Facebook, too. » »

CORK & FORK DORK
By Chris Nishiwaki Email the author May 4, 2012

Business, Restaurant Reviews, The Neighborhood Files

### Cork Dork: Washington Wineries Compete with Best in the World

The Sauvignon Blanc from Kirkland's Cedergreen Cellars makes the 2012 'Oyster Awards' list.

Tweet 7 Email Print Comment

Switch back to Sustainable

**LAST WEEK** I embarked on a road trip to Oregon like I hadn't done since my college days. Back then I would travel to Eugene to watch my Huskies destroy the University of Oregon Ducks in football.

PHOTOS (2)

Upload Photos and Videos

For the record, the University of Washington has won more college football national championships than Oregon, with one. Last Saturday, I stayed in Seattle to watch the University of Washington spring football game. The defense made me optimistic about the 2012 season. The offense was downright offensive and made me want to drink Oregon Pinot Noir. That would have to wait a day.

On Sunday morning I flew to Portland, where our Oregon odyssey began. Crammed in a van, we covered Oregon wine country over the next four days from the Willamette Valleyto the Rogue Valley almost to the California border.

Four writers from California, yours truly as the only representative from Washington, and the Oregon state wine industry each professed the virtues of the various wine regions. The preference and bias for wines, neatly falling by local allegiance, were as clearly defined as the state borders.

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://oregonwinette.wordpress.com/2012/05/08/celebrating-oregon-wine/
**Outlet**: The Oregon Winette

## Event Coverage

**Title:** Celebrating Oregon Wine
**Publication Date**: 05/08/2012
**Tone:** Positive

About

May 08

### Celebrating Oregon Wine

— MAY 8, 2012

To kick off Oregon Wine Month, the Oregon Wine Board set loose more than 80 wineries on Portland's Leftbank Annex on April 29 for an evening of unforgettable tastings all under one roof. With representatives from all the wine regions across the state, the tasting event, UnWine'd, served up samples to celebrate the industry and everyone's love for the Oregon grown and Oregon made drink.

From Pinot Noir to Syrah, Chardonnay and Roses, I couldn't image a better way to celebrate than with a glass. I drove up from

©2012 Cision

## Event Coverage

**Media Type**: Blog
**Media Group**: Internet
**Article URL:** http://www.winebusiness.com/blog/
**Outlet**: Wine Business Monthly
**Title:** It's Oregon Wine Month
**Publication Date**: 05/13/2012
**Tone:** Very positive

WB blog

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**Sunday, May 13, 2012**

### It's Oregon Wine Month

by Cyril Penn | May 13, 2012 | 3:00 PM

Governor John Kitzhaber signed a proclamation designating May 2012 as Oregon Wine Month to promote Oregon wine and recogize how wonderful it is. It's the first time there's been an "Oregon Wine Month" since 1989 when Neil Goldschmidt was Governor. For a time, Goldschmidt had his own vineyard and winery.

Oregon Wine Month includes retail, restaurant and consumer events and promotions. It started with a consumer event in Portland, "Unwine'd: Celebrating Oregon Wine." I was there with small group for a quick media tour with the Oregon Wine Board. We covered a lot of ground in three days.

It's been many years since Oregon wineries came together for such a comprehensive tasting and the industry has evolved. The tasting included 87 producers representing 14 AVAs.

The big tasting seemed to be a hit. More than a thousand people showed up and there looked to be ample local media coverage. And they didn't run out of great food.

I was surprised by the range of wines at the tasting because they weren't all Pinot Noir. There was more diversity than I anticipated, from unusual varietals to ripe Cabernet Sauvignon from Southern Oregon.

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# ODA-S23 A Season of Marketing–PNWCTA Expanded Marketing Program

*Attachment 1*: 2011 Communications Outreach Campaign – Coverage Report
*Attachment 2*: 2011 Communications Outreach Campaign – Overview

# 2011 Communications Outreach Campaign

Pacific Northwest Christmas Tree Association

## Coverage Report

Prepared by

nuffer smith tucker

public relations

## ESTIMATED AUDIENCE REACH

Print and Online Publications: .....3,954,766

Television: .....89,186

Social Media .....see page 7

Wire Distribution: .....26,184,407
(combined English and Hispanic distribution circulation)

**Total: .....30,228,359**

# Print and Online Publications

*Reno Gazette Journal*
Nov. 18, 2011
"Whether cut or live, your Christmas tree will last longer if you follow these tips"
- *Purchase and care tips*
- *Smell and Snap test*
- *Coordinated interview with M. Bondi; quoted*
- *Daily Print Circulation: 50,000*
- *Online Monthly Readership: 244,200*

*The Contra Costa Times*
Nov. 25, 2011
"Christmas tree buying tips"
- Purchase and care tips from PNWCTA
- Daily Print Circulation: 168,362
- Online Monthly Readership: 503,700

*InsideBayArea.com*
Nov. 25, 2011
"Christmas tree buying tips"
- Purchase and care tips from PNWCTA
- Article based on print Contra Costa Times piece
- Online Monthly Readership: 81,000

*MercuryNews.com (San Jose Mercury News)*
Nov. 25, 2011
"Christmas tree buying tips"
- Purchase and care tips from PNWCTA
- Article based on print Contra Costa Times piece
- Online Monthly Readership: 2,800,000

*ChicoER.com*
Nov. 25, 2011
"Christmas tree buying tips"
- Purchase and care tips from PNWCTA
- Article based on print Contra Costa Times piece
- Online Monthly Readership: 41,000

*EDHAT Santa Barbara blog*
Nov. 26, 2011
"The Flip Flops Are Hung By The Chimney With Care"
- Environmental benefits of real and fake trees
- Coordinated interview with M. Bondi; quoted
- Online Monthly Readership: 54,600

*The Sacramento Bee – California Life section, page 4*
Nov. 26, 2011
"Sierra foothill growers gear up for Christmas tree shoppers"
- Season sales expectations
- Reporter spoke with M. Bondi about purchase tips in the Pacific Northwest
- Daily Print Circulation: 279,032
- Online Monthly Readership: 2,500,000

*The Sacramento Bee – California Life section, page 5*
Nov. 26, 2011
"Silver (and gold) tips for picking perfect trees"
- Season sales expectations
- Reporter spoke with M. Bondi about growing conditions in the Pacific Northwest
- Daily Print Circulation: 279,032
- Online Monthly Readership: 2,500,000

*U-T San Diego*
Nov. 26, 2011
"Choosing, Caring for a Cut Christmas Tree"
- PNWCTA sales statistics
- Purchase and care tips
- Smell and Snap test
- PNWCTA website URL
- Daily Print Circulation: 218,614
- Online Monthly Readership: 728,500

# Print and Online Publications

*Evansville Courier Press*

Dec. 1, 2011

"Choosing, and caring for, a live Christmas tree"

- Purchase and care tips
- Article based on print Sacramento Bee piece
- Daily Print Circulation: 68,000
- Online Monthly Readership: 164,300

*VERDURE blog*

Dec. 2, 2011

"Get Real: Choose a fresh-cut Christmas Tree – VIA VERDE"

- Benefits of a real Christmas tree
- Online Monthly Readership: 204

*Antelope Valley Press – Valley Life section*

Dec. 3, 2011

"O Tannenbaum"

- PNWCTA member and production statistics
- 10 reasons to go real
- B. Ostlund quote from press release
- Daily Print Circulation: 50,000
- Online Monthly Readership: 19,300

*MainSt.com*

Dec. 26, 2011

"What to Do With Your Christmas Tree Now"

- Recycle options for real Christmas trees
- Coordinated interview with M. Bondi; quoted
- Online Monthly Readership: 50,200

*Print circulation based on numbers from mymediainfo.com; online circulation based on data from quantcast.com.*

## Sample Print Coverage:

Valley Life

Home & Garden

'O Tannenbaum'

MAIN ST

What to Do With Your Christmas Tree Now

Posted December 26, 2011

1 of 11 PREVIOUS NEXT

The Giving Tree

You know the feeling well – that pang of sadness as you disassemble, one ornament at a time, the Christmas tree you so proudly displayed in your home. The feeling continues as you reluctantly drag it outside to the curb while the kids watch from the living room, their little noses pressed up against the window, with a tear.

OK, in real life the scene might not be so melodramatic, but the truth is you don't have to just throw away your beloved Christmas tree when the holidays are over. There are actually a variety of creative ways to repurpose it to help the environment – or just have fun.

Here are eight ideas for putting that evergreen to good use in the new year.

Photo Credit: Getty Images

THE SAN DIEGO U-T UNION-TRIBUNE

CHOOSING, CARING FOR A CUT CHRISTMAS TREE

Did you know that 90 percent of Christmas trees sold in California are grown on farms in the Pacific Northwest? Mike Bondi, a professor of forestry at Oregon State University who specializes in Christmas trees, relays farmers' tips for selecting and caring for your tree.

When picking a tree, whiff. If it has a musty or mildew smell, it's probably not fresh.

•Bend one needle. If it snaps like a carrot, the tree is fresh. If it's pliable, look for another tree.

•Avoid trees with signs of dryness, including excessive needle loss, discoloration or wrinkled bark.

These are tips for caring for the tree:

# Broadcast Television

## English and Spanish

KUVS-TV Univision 19 and TeleFutura 64 – Sacramento, CA
Tuesday, Nov. 29, 6:30 a.m., 7:15 a.m. and 6 p.m. hour

- L. Santamaria interviewed live in studio with two live and one taped segment
  - — Purchase and care tips
  - — Smell and Snap test
  - — Environmental information, renewable and recyclable
  - — Noble and Douglas Fir trees present
  - — PNWCTA b-roll used
- Audience 6:30 a.m. and 7:15 a.m.: N/A; Audience 6 p.m.: 7,247

KDTV-TV – San Francisco, CA
Thursday, Dec. 1, 6:45 a.m. on Al Despertar Morning Show on Univision and 7:45 a.m. on TeleFutura affiliate morning show

- L. Santamaria interviewed live in studio
  - — Purchase and care tips
  - — Smell and Snap test
  - — Environmental information, renewable and recyclable
  - — Noble and Douglas Fir trees present
  - — PNWCTA b-roll used
- Audience: N/A

KREN-TV Univision – Reno, NV
Friday, Dec. 2, 7 and 11 p.m. hour newscasts

- Taped interview with L. Santamaria in studio to air that evening
  - — Purchase and care tips
  - — Smell and Snap test
  - — Environmental information, renewable and recyclable
  - — Noble and Douglas Fir trees present
  - — Station gave away the trees to local viewers via a contest
  - — PNWCTA b-roll used
- Audience: N/A

KPHO-TV CBS – Phoenix, AZ
Friday, Dec. 2, 6:50 a.m.

- Live segment with M. Bondi from Tim Mitchell's Christmas Trees lot in the Scottsdale area
  - — Purchase and care tips
  - — Smell and Snap test
  - — Environmental information, renewable and recyclable
  - — PNWCTA b-roll used
- Audience: 13,273

KNSD-TV NBC – San Diego, CA
Monday, Dec. 5, Noon newscast

- Live segment with M. Bondi from Pinery Christmas Trees lot in the Mission Valley area
  - — Purchase and care tips
  - — Smell and Snap test
  - — Environmental information, renewable and recyclable
- Audience: 5,884

KVVU-TV FOX – Las Vegas, NV
Tuesday, Dec. 6, 7:45 a.m.

- Live interview in studio with Mike Bondi
  - — Purchase and care tips
  - — Smell and Snap test
  - — Environmental information, renewable and recyclable
  - — Noble and Douglas Fir trees present; differences discussed
  - — PNWCTA b-roll used
- Audience: 27,306

# Broadcast Television

## English and Spanish

KSWB-TV FOX – San Diego, CA
Tuesday, Dec. 6, 7:45 a.m.
Live interview with PNWCTA representative (via NST), Price Adams at Pinery Christmas Trees lot in the Del Mar area

— Purchase and care tips
— Smell and Snap test

- Audience: 21,592

XETV-TV CW – San Diego, CA
Friday, Dec. 9, 7:45 a.m.

- Live interview in studio with Mike Bondi
  — Purchase and care tips
  — Smell and Snap test
  — Environmental information, renewable and recyclable
  — Noble and Douglas Fir trees present; differences discussed
  — Station gave away the trees to local viewers via a contest
- Audience: 13,857

## Spokespeople in Action:

# Social Media

## Account Totals

(as of Jan. 31, 2012):
Twitter: 581 Followers
Facebook: 4,501 Likes

*Click Throughs on Links Posted on Social Media Accounts: 248*

- Twitter contest information: 92 people viewed the Twitter re-tweet contest rules PDF available through the GetRealTrees Twitpic account.
- How to purchase a real, fresh tree via YouTube: 40 people watched Mike Bondi give tips, including the Smell and Snap test, on how to select a fresh real tree.
- Seedlings photo: 20 people viewed the photo depicting rows of young trees growing available through the GetRealTrees Twitpic account.
- Caring For A Real Christmas Tree: 18 people went from either the Twitter or Facebook page to the new PNWCTA website page that provides care tips.

## Twitter

Twitter followers through Jan. 31, 2012: 581
*(up 275 from 306 at the end of last season)*

*Twitter Contest ReTweets:*

Dec. 1: 73 total ReTweets – Estimated 13% of our Twitter followers tweeted our contest message to their followers.

Dec. 8: 48 total ReTweets – Estimated 8% of our Twitter followers tweeted our contest message to their followers.

Dec. 15: 33 total ReTweets – Estimated 6% of our Twitter followers tweeted our contest message to their followers.

Dec. 22: 32 total ReTweets – Estimated 5% of our Twitter followers tweeted our contest message to their followers.

*Topic breakdown of the conversations and PNWCTA Retweets:*

- Environmental information: 26% of PNWCTA Twitter account activity discussed environmental information.
- When and how to buy real trees: 28% of PNWCTA Twitter account activity discussed how to select fresh tree.
- How to care for your real tree: 20% of PNWCTA Twitter account activity discussed different tips for caring for a real tree.

# Sample Twitter Conversations:

**Monnie311** Monica Young
@getrealtrees Thank you! I received my gift card today, this is such a blessing you have no idea. You guys are awesome!
19 Dec

**getrealtrees**
Sure do - table top trees and they're so cute! bit.ly/9nmKXD RT @keeperkelsey: Do they make mini real Christmas trees?

**getrealtrees**
We agree! What do you love the most about a real Christmas tree? RT @ChanceAT_LIFE: Real christmas trees are the best :)

**bcherry82**
@getrealtrees I <3 real Christmas trees like a reindeer loves carrots #FillInTheBlank

**Doodle741**
@getrealtrees I <3 real Christmas trees like a squirrel loves nuts.

**MityDad**
RT @getrealtrees: Real Christmas trees are enviro-friendly & a sustainable product. RT by 5pm PST 4 to win FREE tree. bit.ly/rBJbE3

**getrealtrees**
Video: Everything you've ever wanted to know about purchasing a real Christmas tree: bit.ly/70j6yB

**getrealtrees**
RT @thegouge: Hey friends, real #Christmas trees are better for the economy and (believe it or not) the environment,plus they smell awesome.

**getrealtrees**
Getting ready to share some purchase and care tips for real Christmas trees at 7:30 with @fox5sandiego 's @heatherfordfox5 Tune in!

**getrealtrees**
There's a real Christmas tree for every budget & personality: bit.ly/70j6yB

**getrealtrees**
we agree!! "@LcDUB: real trees are the best trees! it's beginning to smell a lot like Christmas!"

**getrealtrees**
Thanks for the shout out! RT @bcherry82: Check out @getrealtrees for all the info you need on picking the right one to caring for it. ;-)

**getrealtrees**
Looks great! RT @ALOUDlaThe Xmas tree is making its way up the steps of @LApubliclibrary Love the smell of fresh pine! bit.ly/rBqmk3

**getrealtrees**
You just can't beat that smell :) RT @emxanne: The Christmas trees outside work smell amazing. I'm so glad we got a real tree this year.

**@getrealtrees**
Looks great! RT @ALOUDlaThe Xmas tree is making its way up the steps of @LApubliclibrary Love the smell of fresh pine! bit.ly/rBqmk3

powered by Photobucket  Flag this media
30 Nov via TweetDeck
Favorite Reply Delete

**@getrealtrees**
Sure do - table top trees and they're so cute! bit.ly/9nmKXD RT @keeperkelsey: Do they make mini real Christmas trees?

TwitPic  Flag this media
Dec via TweetDeck
Favorite Reply Delete

## Facebook

NST developed the new PNWCTA Facebook page, "I Love Real Christmas Trees," and populated it with information and photos. The page was launched on Nov. 15, 2011 and NST managed all proactive and reactive communication.

NST coordinated two Facebook ads, Nov. 26 – Dec. 21 and Dec. 21 – Dec. 30, which targeted platform users in our target markets.

*Facebook "Likes" through January 31, 2012: 4,501*

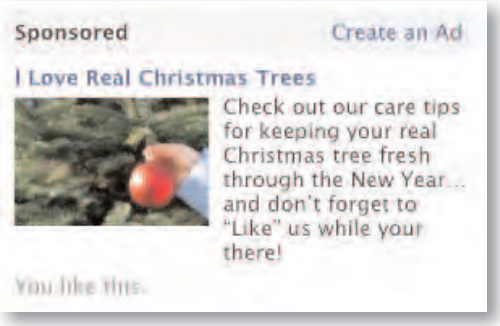
- November 2011: 716 added
- December 2011: 3,907 added
- January 2012: 3 added
- 4,221 Likes found "I Love Real Christmas Trees" through the Facebook ads
- 285 Likes found "I Love Real Christmas Trees" through the page itself
- 14 Likes were referred to found "I Love Real Christmas Trees" through friends on the platform

***Numbers do not include "Unlikes"*

*Facebook ads:*

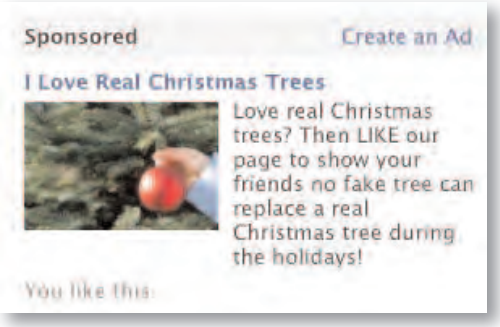
Nov. 26 – Dec. 21

- Impressions: 1,916,637 (number of times the ad was shown on Facebook)
- Clicks: 3,792 (number of clicks the ad received)




Dec. 21 – Dec. 30

- Impressions: 2,800,858 (number of times the ad was shown on Facebook)
- Clicks: 1,268 (number of clicks the ad received)




*Types of posts with the most reach (the number of people that viewed the post):*

- Direct questions evoking the spirit of the holidays/tradition
- Recycle information
- Care tips

# Sample Posts and Engagement:

**I Love Real Christmas Trees**
We've been seeing a lot of hyper-local tips on recycling your real Christmas tree through the Patch.com websites. Does your city have one? If not, we have some suggestions above, or try our partner Earth911.com to find a recycling program near you.

FAQ | Northwest Christmas Trees
www.nwchristmastrees.org

620 People Reached · 13 People Talking About This

Like · Comment · Share · January 2 at 3:12pm

10 people like this.

View all 4 comments · 1 share

**Jennifer Corey** lay your tree alongside a riverbed or creekbank, this year I had a real tree: first in many years thnx honey for trekking across the hill and cutting down a christmas tree for us, love you
January 2 at 3:25pm · Like

**Cheryl Noble** I had Real ones for forever until it started to cost 40 dollars for a nice one.
January 2 at 6:16pm · Like

**I Love Real Christmas Trees**
When decorating your real Christmas tree, what color lights are your favorite to use? A) White B) Green C) Blue D) Multi-color E) +Add an answer

621 People Reached · 24 People Talking About This

Like · Comment · Share · December 22, 2011 at 9:24am

11 people like this.

View all 21 comments · 1 share

**Heather Pearsall** D - for sure!! :)
December 23, 2011 at 10:44am · Like

**Alesia Luft** used to be a white only person, now am in love with the colored...(still like the white, guess it played itself out for me)
December 28, 2011 at 6:15am · Like

**I Love Real Christmas Trees**
We're running our last Twitter contest of 2011 today at @getrealtrees. Head on over and RT the 9 a.m. PST Tweet to be eligible to win a free Christmas tree (via a $40 gift card). Good luck!

301 People Reached · 10 People Talking About This

Like · Comment · Share · December 22, 2011 at 9:48am

7 people like this.

1 share

**Julia Rhodes** speaking of twitter pls feel free to tweet this holiday video www.jiggy.tv/videos/jiggy_cafe_christmas_mishaps/
December 23, 2011 at 9:49am · Like

**I Love Real Christmas Trees**
We've been seeing a lot of hyper-local tips on recycling your real Christmas tree through the Patch.com websites. Does your city have one? If not, we have some suggestions above, or try our partner Earth911.com to find a recycling program near you.

FAQ | Northwest Christmas Trees
www.nwchristmastrees.org

620 People Reached · 13 People Talking About This

Like · Comment · Share · January 2 at 3:12pm

10 people like this.

1 share

**I Love Real Christmas Trees** Well, the link is actually below the post now : )
January 2 at 3:12pm · Like

**Renee Gibson** No recycling in my area that I know of
January 2 at 3:13pm · Like

**Jennifer Corey** lay your tree alongside a riverbed or creekbank, this year I had a real tree: first in many years thnx honey for trekking across the hill and cutting down a christmas tree for us, love you
January 2 at 3:25pm · Like

**Cheryl Noble** I had Real ones for forever until it started to cost 40 dollars for a nice one.
January 2 at 6:16pm · Like

**I Love Real Christmas Trees**
For some people, Christmas Eve is the day to trek to the local tree lot and purchase a real Christmas tree. Are you a Christmas Eve-er? Tell us about your tradition!

796 People Reached · 29 People Talking About This

Like · Comment · Share · December 23, 2011 at 1:10pm

27 people like this.

1 share

**Marie McKinney Stone** I buy an actual tree, to be planted and enjoyed for years. To me that is a "real tree"
December 24, 2011 at 6:25pm · Like · 1

**Fay Burmeister Himes** We support the Christmas tree growers and the boy scouts who sell the trees!!!!!!!!!!!!
December 24, 2011 at 7:41pm · Like

**Jon Nils Olafsson** Put mine up last weekend. We'll see how long it lasts
December 25, 2011 at 3:26am · Like

**Johnnie McHan** No longer--grew up family going into woods on our 20 acres and cutting our own tree from a grove of

# Wire Distribution

Press releases were distributed through PR Newswire in English and Spanish. The English press release focused on the benefits of a real Christmas tree and touched briefly on the 2011 proposed assessments on Christmas trees. The Hispanic press release included PNWCTA messaging with 10 reasons to consider real Christmas trees.

Websites Posting the Releases: .....300

**Estimated Impressions: .....26,184,47**

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# 2011 Communications Outreach Campaign

Presented by

Nuffer, Smith, Tucker

Bill Trumpfheller, Price Adams and Krystin Williamson

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# 2010 at a Glance

Key messages:
- Tradition, affordability and environmental benefits

Targeted major media markets:
- California
- Nevada
- Arizona
- New Mexico

Outreach conducted with:
- Print
- Television
- Radio
- Online

Social media:
- PNWCTA Twitter account activity, ReTweet contests and live chat with Mike Bondi
- Video content developed for use on CNN.com's iReport
- Live Skype TV interview with Mike Bondi from a member tree farm in Oregon

Campaign results:
- Including prominent hits in *Woman's Day*, *The Sacramento Bee*, local online Patch outlets, InlandSoCal blog, and four segments on KTLA-TV in Los Angeles.

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# Strategy for 2011

Elements impacting our outreach:

- Fake trees: perceived value and convenience
- Changing media landscape and shrinking news staffs
- Localizing stories without being local
- Misconceptions of environmental impact of real and fake trees
- Waning media interest in “green” stories

Opportunities:

- Begin outreach earlier in the year for increased opportunities
- Pre-formatted content (increased use of bylines and formatted articles)
- Increased Hispanic outreach
- New website as an informative resource
- Idea of family farms, farmers and increase in understanding of sustainability
- Expanding social media platforms and an increase of PNWCTA Twitter followers
- Holiday tradition and nostalgia/sensory perceptions

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# 2011 Positioning Statement

*Grown by Oregon and Washington farmers concerned about the environment and using sustainable methods to preserve the land for future generations, Pacific Northwest Christmas trees provide a focal point for holiday memories at a great value.*

Target Markets

- Comprehensive outreach to California
- Nevada, Arizona and New Mexico
  - Reno
  - Phoenix/Scottsdale
  - Albuquerque
- Spanish outreach to priority markets of Los Angeles and San Diego
  - Secondary markets include cities in Arizona, Nevada and New Mexico

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# 2011 Key Messages

Affordability

- A real, farm-grown Christmas tree is an affordable way to bring nature and tradition into your home.
- Christmas trees grown in the Pacific Northwest come in many varieties and sizes to match your holiday lifestyle.

Memories vs Traditions

- A real Christmas tree turns your home into the focal point of holiday celebrations and creates long-lasting traditions.
- While traditions may take years to develop, memories are easily created at any time. The ease of a real Christmas tree — purchase, set-up and care — doesn't have to follow the same traditions year after year, but can easily fit into busy schedules to create Christmas memories.
- Real Christmas tree farms support U.S. jobs and the country's heritage of farming.

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# Key Messages, cont.

Ease

- Having a real Christmas tree in the home can be easy and stress-free when you follow PNWCTA purchase and care tips.

- The ease of a real Christmas tree — purchase, set-up and care — doesn‘t have to follow the same traditions year after year, but can easily fit into busy schedules to create Christmas memories.

Environmental

- Real Christmas trees are grown on sustainable farms by U.S farmers just like produce, nuts and other crops, so they do not threaten natural forests.

- Choosing a real Christmas tree shows your concern for the environment and support for U.S. farmers.

- Real Christmas trees are a more environmentally conscious choice.
  - While growing, real trees produce oxygen that is released into the environment, protect soil from erosion and provide refuge for wildlife.
  - Real Christmas trees are renewable and growers plant one or more trees to replace every tree they harvest.
  - Real Christmas trees are recyclable and can be turned into mulch or compost for use throughout the community.

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# Print/Online Outreach

Priority markets

California including Los Angeles, San Francisco/Bay Area, Sacramento and San Diego

- Emphasis also placed on additional markets of Phoenix, Reno, Las Vegas and Albuquerque

NST conveyed 2011 campaign messages in a press release listing the “Top 10 Reasons to Go ‘Real’ This Christmas Season,” which was distributed in English and Spanish. Stories were tailored to reporters and publications covering:

- Home and garden tips
- Feature/lifestyle articles
- Family/parenting topics
- Environmental issues

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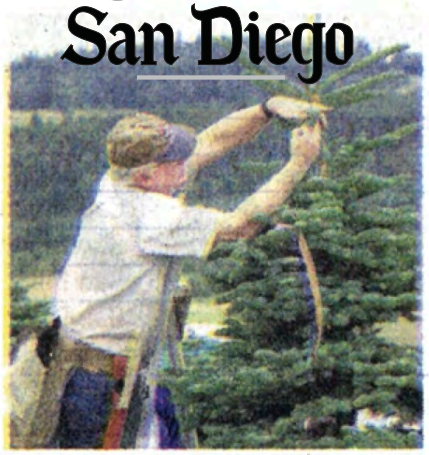
# Print and Online Coverage

U-T San Diego



**Your cut Christmas tree likely grew up on a Northwest tree farm.**

CONTRA COSTA TIMES

RENO GAZETTE-JOURNAL

MAIN ST

2 of 11 PREVIOUS NEXT

**Recycle It**

Want to make sure your tree doesn't end up in a landfill? Many communities offer tree recycling programs in which trees are collected and re-used for the benefit of Mother Nature.

"Generally the trees are ground into a mulch, which can be used as a ground cover or a trail surfacing material," says Michael C. Bondi, a professor of forestry and director of the North Willamette Research and Extension Center at Oregon State University.

The website earth911.com allows you to find the nearest tree recycling program to your home – just click this link and type in your ZIP code. The site will also tell you whether the trees are collected at a drop-off point or picked up curbside.

Photo Credit: Getty Images

THE SACRAMENTO BEE

Antelope Valley Press

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# Newswire Distribution

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statesman.com

KSWT 13 NEWS

Phoenix Business Journal

abc 7

New Mexico Business Weekly

El Hispano News
Serving Hispanics Since 1986

Houston Business Journal

Enviro News & Business

The Press-Enterprise PE.com

El Paso Times elpasotimes.com

HOLA AMIGOS

Sacramento Business Journal

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# Television Outreach

PNWCTA spokespersons made stops in Las Vegas, Phoenix, Reno, Sacramento, San Diego and San Francisco for live and taped segments both in-studio and on-site at member retail lots.

- Two stations gave away the PNWCTA provided trees via social media contests

*KPHO-TV CBS – Phoenix, AZ*

*KREN-TV Univision – Reno, NV*

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# Television Outreach

2011 Highlight Video

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# Social Media Outreach

**Twitter (@getrealtrees):**

- Answering selection and care tips for consumers
- Held four ReTweet contests with more than 186 participants
- Messages always included key messages or “how to” tips
- **Followers: 581**

**Monnie311** Monica Young
@getrealtrees Thank you! I received my gift card today, this is such a blessing you have no idea. You guys are awesome!
19 Dec

**bcherry82** Brianne Cherry
@getrealtrees I <3 real Christmas trees like a reindeer loves carrots #FillInTheBlank
18 Dec

**@getrealtrees**
PNW Christmas Trees

Sure do - table top trees and they're so cute! bit.ly/9nmKXD RT @keeperkelsey: Do they make mini real Christmas trees?

TwitPic Flag this media

20 Dec via TweetDeck
Favorite Reply Delete

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# Social Media Outreach

## Facebook

- Developed the new PNWCTA Facebook page, “I Love Real Christmas Trees”
- Coordinated two Facebook ads targeting users in key markets with select terms
- Posts followed 2011 messages with an emphasis on purchase and care tips
- High engagement with questions evoking the spirit and tradition of the holidays
- **Likes: 4,501**

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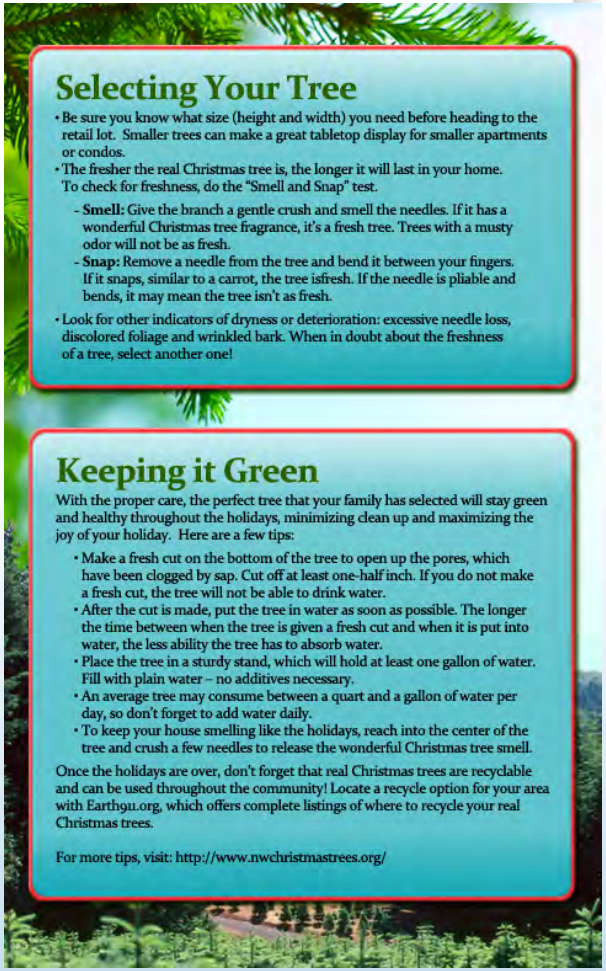
# Custom Facebook Designs



## Selecting Your Tree

- Be sure you know what size (height and width) you need before heading to the retail lot. Smaller trees can make a great tabletop display for smaller apartments or condos.
- The fresher the real Christmas tree is, the longer it will last in your home. To check for freshness, do the "Smell and Snap" test.
  - **Smell:** Give the branch a gentle crush and smell the needles. If it has a wonderful Christmas tree fragrance, it's a fresh tree. Trees with a musty odor will not be as fresh.
  - **Snap:** Remove a needle from the tree and bend it between your fingers. If it snaps, similar to a carrot, the tree isfresh. If the needle is pliable and bends, it may mean the tree isn't as fresh.
- Look for other indicators of dryness or deterioration: excessive needle loss, discolored foliage and wrinkled bark. When in doubt about the freshness of a tree, select another one!

## Keeping it Green

With the proper care, the perfect tree that your family has selected will stay green and healthy throughout the holidays, minimizing clean up and maximizing the joy of your holiday. Here are a few tips:

- Make a fresh cut on the bottom of the tree to open up the pores, which have been clogged by sap. Cut off at least one-half inch. If you do not make a fresh cut, the tree will not be able to drink water.
- After the cut is made, put the tree in water as soon as possible. The longer the time between when the tree is given a fresh cut and when it is put into water, the less ability the tree has to absorb water.
- Place the tree in a sturdy stand, which will hold at least one gallon of water. Fill with plain water – no additives necessary.
- An average tree may consume between a quart and a gallon of water per day, so don't forget to add water daily.
- To keep your house smelling like the holidays, reach into the center of the tree and crush a few needles to release the wonderful Christmas tree smell.

Once the holidays are over, don't forget that real Christmas trees are recyclable and can be used throughout the community! Locate a recycle option for your area with Earth911.org, which offers complete listings of where to recycle your real Christmas trees.

For more tips, visit: http://www.nwchristmastrees.org/

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## Estimated Audience Reach for Traditional Media:

Television: 89,186

Print and Online Publications: 3,954,766

English/Spanish Wire Distribution: 26,184,407

**TOTAL: 30,228,359 estimated impressions**

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# Looking Forward: 2012

**Opportunities**

- Pre-formatted content (increased use of bylines and formatted articles)
- Positioning of key spokespeople
- Leverage the new PNWCTA website and cross-populate with content
- Utilizing social media platforms throughout the year
- Hispanic outreach with Spanish-speaking spokesperson
- Updated pictures and content across all channels and outreach
- Members conducting individual media relations/established relationships

**Threats**

- Fake trees
- Localizing stories without being local

# ODA-S24 Pear Promotional Road Show

*Attachment 1*: Sales Figures

# PERAS USA ROAD SHOW 2011

A. Northwest Pear sales during the promotional period

| | CITY | STORES | SALES BEFORE | SALES DURING |
|---|---|---|---|---|
| SORIANA | MEXICO CITY | 24 | 72 | 96 |
| | GUADALAJARA | 26 | 65 | 78 |
| | MONTERREY | 51 | 112.2 | 204 |
| | QUERETARO | 11 | 22 | 33 |
| SMART | MONTERREY | 2 | 4 | 10 |
| WALMART | GUADALAJARA | 12 | 27.6 | 36 |
| | MONTERREY | 15 | 22.5 | 52.5 |
| BODEGA AURRERA | MEXICO CITY | 29 | 58 | 101.5 |
| | GUADALAJARA | 8 | 20 | 36 |
| | MONTERREY | 8 | 24 | 40 |
| COMERCIAL MEXICANA | CUERNAVACA | 4 | 12 | 16 |
| | QUERETARO | 3 | 7.5 | 9 |
| | GUADALAJARA | 4 | 12 | 16 |
| MERKABASTOS | GUADALAJARA | 1 | 3 | 5 |
| CHEDRAUI | GUADALAJARA | 3 | 9 | 18 |
| | | Total sales | 470.8 | 751 |

Average sales increase of Northwest pears during the promotional period 60%

Sales before = Sales on the same day of the week, 1 week prior to promotion
Sales during = Sales on the day of the promotion, for all outlets of participating retailers

increase in sales with each retailer during the promotional period - boxes per day

| | STORE | CITY | DATE | SALES BEFORE (boxes) | SALES DURING (boxes) | SALES AFTER (boxes) |
|---|---|---|---|---|---|---|
| 1 | SORIANA TLALPAN | MEXICO CITY | February 2, 2011 | 2 | 5 | 4 |
| 2 | SORIANA MIRAMONTES | MEXICO CITY | February 9, 2011 | 2 | 6 | 4 |
| 3 | SORIANA PLAZA CANTIL | MEXICO CITY | February 11, 2011 | 3 | 6 | 4 |
| 4 | SORIANA LA VIGA | MEXICO CITY | February 12, 2011 | 2 | 6 | 3 |
| 5 | SORIANA LA VIGA RECREO | MEXICO CITY | February 15, 2011 | 3 | 4 | 3 |
| 6 | COMERCIAL MEXICANA TULYEHUALCO | MEXICO CITY | February 16, 2011 | 3 | 6 | 3 |
| 7 | SORIANA COAPA | MEXICO CITY | February 17, 2011 | 3 | 5 | 3 |
| 8 | SORIANA DIVISION DEL NORTE | MEXICO CITY | February 18, 2011 | 2 | 4 | 3 |
| 9 | SORIANA SANTA LUCIA | MEXICO CITY | February 22, 2011 | 3 | 5 | 3 |
| 10 | SORIANA TLAHUAC | MEXICO CITY | February 23, 2011 | 3 | 6 | 4 |
| 11 | MEGA CUERNAVACA III JACARANDAS | CUERNAVACA | February 24, 2011 | 3 | 7 | 5 |
| 12 | MEGA LA DIANA CUERNAVACA | CUERNAVACA | February 26, 2011 | 3 | 6 | 5 |
| 13 | WALMART JIUTEPEC CUERNAVACA | CUERNAVACA | February 27, 2011 | 3 | 5 | 5 |
| 14 | MEGA ZARAGOZA QRO | QUERETARO | March 2, 2011 | 3 | 4 | 3 |
| 15 | MEGA PEÑUELAS/ESTADIO QRO | QUERETARO | March 3, 2011 | 2 | 4 | 2 |
| 16 | SORIANA LA CAPILLA QRO | QUERETARO | March 4, 2011 | 2 | 6 | 3 |
| 17 | WALMART SUPER CENTER RIO NILO | GUADALAJARA | March 8, 2011 | 2 | 5 | 5 |
| 18 | COMERCIAL MEXICANA MEGA RAFAEL SANZIO | GUADALAJARA | March 9, 2011 | 3 | 4 | 3 |
| 19 | BODEGA AURRERA REVOLUCION | GUADALAJARA | March 10, 2011 | 2 | 6 | 3 |
| 20 | BODEGA AURRERA MATATLAN | GUADALAJARA | March 11, 2011 | 2 | 5 | 4 |
| 21 | BODEGA AURRERA SAN GASPAR | GUADALAJARA | March 12, 2011 | 3 | 4 | 3 |
| 22 | MERKABASTOS | GUADALAJARA | March 13, 2011 | 3 | 6 | 4 |
| 23 | SORIANA RIO NILO | GUADALAJARA | March 15, 2011 | 2 | 5 | 4 |
| 24 | BODEGA AURRERA SAN PEDRO | GUADALAJARA | March 16, 2011 | 3 | 5 | 3 |
| 25 | BODEGA AURRERA AGAVES | GUADALAJARA | March 17, 2011 | 1 | 6 | 4 |
| 26 | SORIANA BELENES | GUADALAJARA | March 18, 2011 | 2 | 5 | 5 |
| 27 | WALMART LOPEZ MATEOS | GUADALAJARA | March 22, 2011 | 2 | 4 | 4 |
| 28 | COMERCIAL MEXICANA NUEVA MEGA GALICIA | GUADALAJARA | March 23, 2011 | 3 | 6 | 4 |
| 29 | SORIANA SANTA FE | GUADALAJARA | March 24, 2011 | 3 | 5 | 4 |
| 30 | CHEDRAUI ACUEDUCTO | GUADALAJARA | March 25, 2011 | 3 | 7 | 5 |
| 31 | SORIANA ADOLFO HORNS | GUADALAJARA | March 26, 2011 | 2 | 4 | 5 |
| 32 | SORIANA ESTADIO | GUADALAJARA | March 27, 2011 | 3 | 4 | 4 |
| 33 | SORIANA CAMICHINES | GUADALAJARA | March 29, 2011 | 3 | 5 | 4 |
| 34 | SORIANA TLAQUEPAQUE | GUADALAJARA | March 30, 2011 | 2 | 6 | 5 |
| 35 | BODEGA AURRERA TOLUQUILLA | GUADALAJARA | March 31, 2011 | 2 | 4 | 3 |
| 36 | SORIANA GOBERNADOR CURIEL | GUADALAJARA | April 1, 2011 | 3 | 3 | 2 |
| 37 | BODEGA AURRERA MIRAMAR | GUADALAJARA | April 2, 2011 | 3 | 4 | 3 |
| 38 | BODEGA AURRERA SANTA PAULA | GUADALAJARA | April 3, 2011 | 2 | 6 | 4 |
| 39 | WALMART 16 SEPTIEMBRE | GUADALAJARA | April 5, 2011 | 3 | 4 | 3 |
| 40 | SORIANA CHAPALA | GUADALAJARA | April 6, 2011 | 3 | 3 | 3 |
| 41 | SORIANA LINCOLN | MONTERREY | April 8, 2011 | 2 | 5 | 4 |
| 42 | SMART SOLIDARIDAD | MONTERREY | April 9, 2011 | 2 | 6 | 5 |
| 43 | WALMART LINCOLN | MONTERREY | April 10, 2011 | 2 | 5 | 6 |
| 44 | SORIANA COLON | MONTERREY | April 11, 2011 | 2 | 4 | 5 |
| 45 | SORIANA CUMBRES | MONTERREY | April 13, 2011 | 3 | 7 | 4 |
| 46 | BODEGA AURRERA SOLIDARIDAD | MONTERREY | April 15, 2011 | 3 | 3 | 5 |
| 47 | SORIANA SOLIDARIDAD | MONTERREY | April 16, 2011 | 2 | 4 | 3 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 48 | SORIANA SANTA CECILIA | MONTERREY | April 18, 2011 | 2 | 5 | 4 |
| 49 | SORIANA AZTLAN | MONTERREY | April 19, 2011 | 3 | 5 | 5 |
| 50 | SMART CONTRY | MONTERREY | April 20, 2011 | 2 | 7 | 5 |
| 51 | SORIANA FELIX GOMEZ | MONTERREY | April 21, 2011 | 2 | 6 | 2 |
| 52 | WALMART LAS TORRES | MONTERREY | April 22, 2011 | 1 | 5 | 5 |
| 53 | SORIANA FUNDIDORA | MONTERREY | April 25, 2011 | 2 | 5 | 3 |
| 54 | SORIANA CONTRY | MONTERREY | April 26, 2011 | 2 | 5 | 4 |
| 55 | SORIANA COLON | MONTERREY | April 27, 2011 | 2 | 5 | 4 |
| 56 | MEGA MIXCOAC | MEXICO CITY | May 11, 2011 | 3.5 | 6 | 5 |
| 57 | MEGA INSURGENTES | MEXICO CITY | May 12, 2011 | 2 | 7 | 4 |
| 58 | BOD. COMERCIAL MEXICANA TACUBA | MEXICO CITY | May 13 2011 | 2 | 6 | 5 |
| | | | | 141.5 | 297 | 226 |
| | | | | | 110% | 60% |
| | | | | | Sales increase during | Sales increase after |

Sales before = Sales on the same day of the week, 1 week prior to promotion
Sales during = Sales on the day of the promotion
Sales after = either the day after or the second day after the promotion

# ODA-027 Certification Programs Expansion to Incorporate Improved Industry Outreach to Specialty Crop Producers

*Attachment 1: Hood River Industry Food Safety Training Survey*

Oregon Department of Agriculture
Market Access and Certification Program Area
# Industry Food Safety Training Survey

How did you hear about this training opportunity?

Which training module did you find most useful?

On a scale of 1 to 5, how relevant is the information from this training to your own operation?

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Not relevant | | | | Highly relevant |

On a scale of 1 to 5, how likely would you be to attend an advanced training session presented by the Oregon Department of Agriculture?

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Not likely | | | | Highly likely |

What information would you like to hear more about in future trainings?

Are there any questions you have that were not addressed during the training? If so, please write them below and you will receive a response from ODA.