

**Fiscal Year 2009 Specialty Crop Block Grant  
Final Report  
Agreement Number 12-25-G-0945**

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**Oregon Department of Agriculture  
Agricultural Development and Marketing Division  
1207 NW Naito Parkway, Suite 104  
Portland, Oregon 97209  
(503) 872-6600**

**Katie Pearmine  
Specialty Crop Block Grant Program Coordinator  
Email: [kpearmine@oda.state.or.us](mailto:kpearmine@oda.state.or.us)**

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**001 TITLE: Good Agricultural Practices Outreach and Training Cost Reduction Program  
– Final Report**

**CONTACT NAME: Lindsay Eng, Oregon Department of Agriculture**

**PHONE: 503-872-6636**

**EMAIL: [leng@oda.state.or.us](mailto:leng@oda.state.or.us)**

**PROJECT SUMMARY**

The intent of this project was to target farm food safety outreach to socially disadvantaged, small and beginning farmers and provide cost reduction for certification costs to lower the barrier to entry of participation in a third-party farm safety audit program. In using the two-pronged approach, the Oregon Department of Agriculture intended to educate a segment of the fresh produce farming population in Oregon that had not traditionally taken advantage of the USDA GAP/GHP program since its inception in 2002 and ensure that they had access to the program and were prepared for federal food safety regulatory changes and market access requirements that might be coming their way.

In a previously funded SCBGP project from FY2006, the Oregon Department of Agriculture conducted an outreach effort based on USDA GAP/GHP program requirements and developed a food safety manual for growers to use in developing their own farm safety plan. These manuals were also used to conduct outreach in this grant project, although baseline knowledge about the program has increased in the farm community and more technical outreach materials or focused subjects have been found to have more efficacy in helping producers achieve certification.. The manual continues to be available for download on our website:

[http://www.oregon.gov/ODA/ADMD/Pages/gap\\_ghp.aspx](http://www.oregon.gov/ODA/ADMD/Pages/gap_ghp.aspx).

It was important to build upon existing work that the Oregon Department of Agriculture had already done in the area of farm food safety and conduct the activities in this project for a number of reasons. First, as we have seen growth in USDA GAP/GHP certifications continue each year, it has come with increasingly serious predictions about the ad hoc requirement of third-party verification of farm safety practices by several different types of buyers. We have seen third-party food safety certifications move from a marketing tool to differentiate farms because of the extra work they have done to ensure food safety to a market access issue – many times excluding farms due to lack of farm safety programs.

In 2011, the federal government passed the Federal Food Safety Modernization Act, which established a regulatory requirement for all farms to implement a farm safety program. While rules have not yet been released for implementation of these requirements, many farms are trying to work towards GAP/GHP certification in order to ensure they are ready to meet regulatory requirements once established. Project activities already underway assist in further educating and preparing Oregon’s specialty crop producers to consider food safety practices on their farm.

## PROJECT APPROACH

A cost share program was established modeled after the organic cost share program that is administered by states through Farm Bill block funding. The requirements to receive cost share for USDA GAP/GHP reimbursement under this project included the following:

1. Farms of 30 acres or less
2. Farms or farm managers that had been producing crops for 10 years or less
3. Reimbursement available for 75% of certification fees, up to a total of \$250

Funds were offered as reimbursement once certification had been achieved and were available on a first come, first serve basis. We began offering cost share in 2010 and extended the program through the 2012 season due to the availability of funds as originally allocated in the project. Additionally, in 2011, we added the ability to apply for cost share funds if a farm operation was actively engaged in trying to access a school food or institutional market within the state, but did not have any participation from that sector.

Outreach seminars continued throughout the project period, focusing on both new participants at Oregon State University Extension classes and community college classes for new farmers, through a partnership with Organically Grown Company and in our specialty crop production districts across the state. Seminars were attended by continuing GAP participants as well as new growers each year.

## GOALS AND OUTCOMES ACHIEVED

This project was meant to increase USDA GAP/GHP audits through two avenues, with outreach and education about the requirements of the program to new participants as well as cost share funding to decrease the barriers to entry of participation in a USDA GAP/GHP audit.

In 2011, after introspection about the project, we also added a goal to provide cost-share funding and specifically target those USDA GAP/GHP participants that were attempting to access the school food and institutional markets within the state. We conducted outreach among school food purchasers and provided coordinated training with the ODA's Farm to School Program to a number of interested producers. We did not, however, have any farms that specifically applied for cost share funding for this purpose.

Over the course of the grant period, USDA GAP/GHP acreage and total number of audits conducted did increase and we finally (in 2012) reached our goal of 35 new farms participating. In fact, 2012 was a banner year for our outreach efforts with small farms and new and startup farmers. We had conducted some outreach as a part of this grant project with Organically Grown Company, a large wholesale distributor of organic produce, and are starting to see their growers apply for certification. This highlighted the fact that for many small and diversified farms, implementing a farm safety program is a long term project and our outreach efforts may not be reflected in certified statistics until 2-3 years beyond the original contact.

<b>Year</b>	<b># Certified Acres</b>	<b># Total Audits Conducted</b>
<b>2010</b>	77,198	251
<b>2011</b>	67,918	278
<b>2012</b>	79,915	328

For cost share, the Oregon Department of Agriculture paid reimbursements to 24 applicants over the 3 year grant period. This number was significantly lower than the number of applicants expected, but the demand for cost share reimbursement did not seem to follow the demand for GAP/GHP certification. We did have several applicants who did not meet the requirements we set forth. We also had 3 applicants over the 3 year grant period who did not respond when we requested them to provide more information (such as proof of payment, proof of certification and W-9 forms). We heard from another organization that offered cost share funding to its members for new USDA GAP/GHP certifications who had a similar lack of demand.

Additional work that we included in this outreach project for the 2012 season was a focus on technical assistance for understanding how to best meet GAP/GHP requirements. Specifically, we found that many producers who had taken advantage of the GAP/GHP program in the past, as well as new participants, did not fully understand what was required of a water risk assessment. As farm irrigation and application water is a large potential risk for foodborne illness, our outreach efforts focused on promoting assessments that included looking closely at water microbial levels, what organisms the tests were designed for, sampling procedures, threshold levels and action plans in case of levels deemed too high for the product being irrigated. This created a need for discussion to continue as farm food safety requirements change and become more rigorous for producers.

## **BENEFICIARIES**

This project benefited all fresh produce farmers, packers and handlers by allowing the Oregon Department of Agriculture to develop and distribute materials, making them freely available to all, and hold outreach seminars that were open to all producers across the state. Cost share funds targeted the small, new and startup farmers and contributed \$6,000 in sharing certification costs for 24 growers.

The overall value of farm food safety certification and knowledge is extremely hard to measure. It is estimated that for some products and in some areas, farmers would not be able to sell their product unless they hold a third-party food safety certification. USDA GAP/GHP certified produce farms in Oregon represent more than \$375 million dollars annually of farm gate value, a large portion of total output. In many sectors, the majority of producers are participating in a GAP program.

Other research has shown that the value lies in the mitigated risk against market crashes due to a food safety outbreak in the same or similar commodity. There is some evidence that GAP certified farms had experienced a lesser drop in demand after large scale outbreaks such as spinach or cantaloupe than those without any third-party food safety program in place. How much this can protect a farm against market risk is unknown, however.

## **LESSONS LEARNED**

One of the most important lessons that we learned from this project was that specialty crop producers, at least in Oregon, place more value on good practices and market assurance than a small financial incentive. In distributing cost share funds to GAP/GHP participants, we found that all of the entities that participated would have done so anyway – regardless of the

availability of cost share funds. Thus, \$250 was not an adequate incentive to convince a farmer to undertake a farm food safety program and apply for third party certification in and of itself. Most farms undertook this as market assurance that they could sell their products or to protect themselves against a foodborne illness outbreak occurring on their operation.

We are continuing to see this as we see a strong shift to GFSI benchmarked certification schemes. Many of our existing GAP/GHP customers are moving beyond the USDA program to a GFSI benchmarked scheme such as GlobalGAP, PrimusGFS, or SQF because retailers purchasing their products require it. The shift from a USDA audit to a GFSI audit generally averages about \$1200 additional per year, but the shift is occurring because it provides market assurance to producers.

In evaluating the greatest need for farm food safety in the future in Oregon, we learned that the greatest need continues to be providing up to date and increasingly technical information to specialty crop producers. As the science of farm food safety becomes better developed and third-party certification programs increase in stringency, the best value that the Oregon Department of Agriculture can provide to our industry partners is information and educational outreach to help them meet the demands placed on them from buyers and regulators.

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**002 TITLE: Organic Systems Training: Developing integrated conservation, safety and organic production plans for Oregon producers - *Final Report (Approved 1/27/11)***

**CONTACT: Lindsay Benson Eng, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [leng@oda.state.or.us](mailto:leng@oda.state.or.us)**

**PROJECT SUMMARY**

The ODA intended to organize two organic industry trainings, one focused on organic farming operations and one on organic processing operations. “Integrating Organic Farm Plans and Conservation Practices” was intended to address accessing national conservation grant dollars for organic producers and developing conservation plans that fit within the guidelines of the National Organic Standards for US producers. Additionally, the ODA intended to also offer “Integrating Organic Critical Control Points and HACCP” to the organic processing community and food safety officials to better understand the parallels and points of intersection for organic processors and their HACCP food safety programs. These trainings were looking to include food safety and conservation officials, organic certifiers and inspectors as well as producers to create dialogue and best practices for integrating organic systems with other areas of production regulations and assistance.

**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 and attempts to find likely partners to assist the Department in presenting these seminars, it was found that the staff capacity of both the Department and other likely partners was not sufficient to carry out the project in a successful manner. Due to staffing concerns, 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 in 2011 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.

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**003 TITLE: Maximum Residue Level Testing Project – *Final Report***

**CONTACT NAME: Lindsay Eng, Oregon Department of Agriculture**

**PHONE: 503-872-6636**

**EMAIL: [leng@oda.state.or.us](mailto:leng@oda.state.or.us)**

### **PROJECT SUMMARY**

The initial purpose of this project was to focus on voluntary maximum residue level (MRL) testing as a market access and promotional tool for Oregon's largest fresh produce crops. When this project was funded in 2009-2010, MRL issues were increasingly becoming a market access barrier, with pesticide residue levels being targeted by foreign country governments as well as international retailers.

Several of Oregon's industries reported that they had received inquiries from retailers about pesticide residue sampling programs and requests for analysis results. There was a reasonable amount of confusion as to what compounds were prompting these requests for residue analysis and how an effective sampling and testing program should be managed to ensure acceptance by all parties. The Oregon Department of Agriculture (ODA) noted that with country specific MRL tolerances being established and the CODEX guidelines being adopted in more countries, the instances of fresh product not meeting tolerances were rising.

In order to address the emphasis on MRLs being seen in the marketplace, the ODA sought to partner with specialty crop industry sectors to develop a coordinated sampling and testing program that would provide not only market access, but also marketing and promotional added value for Oregon crops.

### **PROJECT APPROACH**

This project was approached with three main foci: laboratory preparation, including capacity building in pesticide analytical analysis, selection and cooperation of industry groups to better identify the needs of Oregon's industries, and finally, marketing and promotional support.

In 2010, the ODA identified Certified Onion, Inc. (COI) as a partner in the development of a coordinated sampling and testing program for onions produced in the Treasure Valley area of Oregon and Idaho. Due to market concerns regarding pesticide residue in their area, the COI group had an interest in creating a membership organization that tested all of the organization's fields for pesticide residue.

The ODA and COI developed two different pesticide residue screens in the first year. The first screen consisted of off-label pesticides of concern, or those pesticides not currently allowed for use on onions. The second screen consisted of 214 compounds that were based on the Japanese positive MRL list. The COI membership decided to sample every field and then homogenize a sample from each five fields per participating grower in a single sample for analysis.

The ODA had not previously offered these expanded screens, however with additional training on new LC/MS equipment and the purchase of additional methods and standards, the ODA's

laboratory staff were able to include all pesticides required for the screens. Since 2010, the screens have been expanded and improved. The COI program now offers 3 different screens: a domestic screen for onions intended for US domestic sale, including the most commonly used compounds in the area, as well as the two initial off-label and international screens. The international screen has grown to well over 300 compounds since 2010.

Year	# MRL Analytical Screens Conducted	COI Packer/Handler Members
2010	275	23
2011	221	24
2012	229	28

In addition to expanding laboratory capacity, the Oregon Department of Agriculture worked with COI to explore and develop new markets for their residue-tested products. Promotional exploration was done in Hong Kong, Japan, Taiwan, Korea and Russia on behalf of COI.

*Project Activities in Japan, Taiwan and Hong Kong:*

The onion industry in the Treasure Valley of Oregon/Idaho traveled with ODA marketing and certification staff to promote their participation in the ODA MRL program and cooperate on a trade mission to Japan, Taiwan, and Hong Kong to promote pesticide residue screening on all their onions. This trade and fact finding mission was done in cooperation with Certified Onion, Inc. and the Oregon Department of Agriculture. This trip was accomplished in March 2010 and continues to yield positive results in all the areas.

In Taiwan, there was significant interest in onions that had undergone “pre-import” clearance and certification on pesticide residue levels – especially as Taiwan is working to increase its surveillance and standards on allowed levels of pesticide residue. The Taiwan FDA is very interested in this process as they are beginning to test fresh produce at higher rates than ever before. As for sales, one of the major fresh produce importers in Taiwan will be visiting the Treasure Valley Onion growers in the Winter of 2011 to discuss potential business opportunities.

In Japan, again there was significant interest from private buyers as Japanese consumers have very high standards for safety and quality of their food. Since that mission, Certified Onion, Inc. has been working in the Japan market as reported in the Outcomes Achieved section of this report.

In Hong Kong, the most open of all the three countries visited, the government does not have any guidelines or regulations on pesticide residue for imported produce. However, as the Hong Kong consumer is increasingly demanding better quality food and as they increasingly receive more of their fresh produce from Mainland China, pesticide residues are likely to become a greater issue of concerns from the consumer side. It was determined that this market, in particular, may be a retail-driven movement towards pesticide residue sampling and testing. Meetings with Park N’Shop, one of Hong Kong’s biggest retailers confirmed these early findings. However, price sensitivity still seems to be a concern, especially for a commodity like onions, which are not considered to be a luxury item by Hong Kong consumers.

*Project Activities in Vladivostock, Russia:*

ODA staff did travel to Vladivostock, Russia in October of 2010 to determine efficacy of the MRL testing program in aiding Oregon exports to the Russian Far East, but determined that the market is not sophisticated enough to require pesticide residue testing at this point. Instead, efforts in that market will be focused on market access through import permits and distribution efficiencies since the population in the Far East may no longer be large enough to support a booming US produce import market. This research and discovery work was done as part of another ODA project, and likely the Russian Far East will not continue to be a target market for the ODA MRL program outreach efforts.

*Project Activities in Europe:*

Two areas of outreach and marketing of the ODA MRL program that were not pursued were domestic retailer outreach and the European market, including European retailers such as Tesco and Carrefour. This was due to several reasons. The ODA was hesitant to conduct too much retailer outreach before we had more industry support and participation in the program to ensure that the program was something that industry wanted to promote to retailers and a value-added proposition, and not something that ODA would be seen as promoting without industry support. As for the European market, Oregon specialty crop exports to the EU have remained stagnant since the recession in 2008 and the demand for pesticide residue tested products specifically in the European market has significantly dimmed from the effects of that recession on the retail sector. Private pesticide residue requirements from retailers was not a discussion that Oregon's industry supported ODA reopening with European retailers.

In 2011, these promotional efforts resulted in increased sales to Japan for COI branded onions. Although government-to-government efforts have not afforded the ODA laboratory to pre-clear product for pesticide residue in Japan, the retail and wholesale markets continue to have a strong interest in product that has strong traceability and a comprehensive testing program. For this reason, movement of COI product continues in the Japan market as of the 2012 harvest season.

As a result of the capacity and development work done in the early part of this project, in 2012, the ODA worked with the Oregon Blueberry Industry to address pre-clearance issues with the entry of fresh Oregon blueberries to South Korea. This is the first time that fresh Oregon blueberries have been exported to South Korea. In South Korea, all new to market products are held for a clearing process that includes a screen for pesticide compounds. Once an exporter has shown that its product is free from prohibited residue, subsequent shipments are considered safe unless residues are found on a random sample.

The ODA was able to develop and offer a pre-clearance testing program for all registered packers participating in the Oregon Fresh Blueberries to Korea program because of the ODA Export Service Center's foreign accredited laboratory status with the Korean Food and Drug Administration (KFDA). This effort was a targeted approach for a specific market, but may have potential growth opportunities as the Oregon blueberry industry looks for more comprehensive solutions to MRL issues in export markets. This effort was largely funded by another FY09 SCBGP project titled: Oregon Fresh Blueberries to Korea: Certification Program Implementation and Development, but benefited and built upon work previously completed and ongoing on this project.

## **GOALS AND OUTCOMES ACHIEVED**

The measurable outcome originally proposed for this project was to develop a program that provides assurance to specialty crop exporters that they would experience zero instances of sanitary trade barrier delays due to MRL concerns. The baseline was estimated, for a large exporter, of 3-5 potential delay instances per year. Unfortunately, this measure was extremely hard to collect data for due to the vast number of factors that can affect an exporters experience with MRL concerns. Additionally, as the coordinated MRL analysis programs that were developed in cooperation with industry were limited in scope, we could not adequately assess impact to the specialty crop industry as a whole.

Another factor that has limited these findings is, for onions, the majority of production participating in the Certified Onion, Inc. program in cooperation with the Oregon Department of Agriculture did not end up being exported to a target market of concern. Most onions from the Treasure Valley are being sold in the US domestic market due to shipping costs and logistics resulting from the geographic location of the production areas. However, two local major processors have required the international screen, the most comprehensive, to be conducted for all onions they purchase – regardless of end market.

Work was done in Japan to market the ‘MRL tested and approved’ onions with some success since 2010 and no MRL issues have been reported there. While there is not a history of Japan finding residue on fresh onions, the Japanese Ministry of Health, Labour and Welfare (MHLW) conducts extensive surveillance testing on all products that enter the country and there has continued to be no problem with onions shipped under the Certified Onion, Inc. program. Some retailers in Japan are also conducting their own residue analyses, and no reported delays or issues have been found from retailer analysis of Certified Onion, Inc. product. It has been reported by several major onion exporters and our contractor in Japan that the program has been and continues to be positively accepted in the Japanese market.

For blueberries, because the project was limited in scope to pre-clearance entry into the Korean market, we can only assess the product that was analyzed specifically for that market. For the Korean fresh blueberry market, there were no reported incidences of import delays relating to MRLs as a result of preclearance testing. It was found, however, that in October 2012, an MRL finding in Taiwan on blueberries sparked the government of Korea to establish a heightened surveillance protocol for all US blueberries (fresh and frozen) imported into Korea for a period of three months. It is unclear at this time whether this will be lifted in time for next season’s fresh blueberries or whether this protocol will continue.

This instance emphasizes the difficulty in measuring success of an industry-wide MRL program due to the extraneous factors that can cause delays and impediments in the marketplace. It is costly and taxing for growers to effectively produce their products with MRL tolerances of different countries in mind. They must have extremely effective monitoring systems in place and often forego using one chemical that may be more effective over another because of MRL concerns of another country. In the case of blueberries to Korea, many fields were managed to meet Korean MRL tolerances when the product never shipped to Korea.

## **BENEFICIARIES**

Beneficiaries of this project were the packers and handlers of the targeted specialty crop industries originally identified. While the onion and blueberry industries were the only sectors that were able to establish a coordinated program, all specialty crop industries will continue to benefit from the experience of the public-private partnership that occurred on this important issue and can take advantage of the capacity that was developed within the ODA laboratory and marketing staff to assist in MRL related issues, particularly in regard to export markets.

Over the course of the project period, official sampling, testing and certification was conducted on over 1 billion pounds of Treasure Valley onions *annually*. In 2012, this represented over \$94 million of certified product in the marketplace. Since testing began under this program, not a single test was found to have residue exceeding EPA tolerances. This has prevented a market failure due to unwanted pesticide residue on fresh onions and has instilled a market confidence in onions certified under this program.

In the case of fresh blueberries to Korea, where a targeted pre-clearance program was established for Korean MRL levels, the program facilitated over \$1 million worth of fresh blueberries in a new market for the first year. MRL pre-clearance analysis was conducted to prevent delays at port caused by KFDA sampling and holding. This allowed product to get to retail outlets on time and avoid spoilage and costly storage delays.

## **LESSONS LEARNED**

The original project provided for a large budget to travel to Oregon's largest trading countries and international retailers to discuss MRL issues and how best to assist industries in addressing these needs. Specifically, in attempting to set up meetings with retailers, it was found that there was little interest in discussing a coordinated MRL approach by industry sectors and appointments with national headquarters were not possible. The Oregon Department of Agriculture did, however, conduct extensive government-to-government outreach regarding MRL issues with our counterparts in Japan, Korea, Taiwan, and Hong Kong. The majority of this work was done in coordination with trade missions or other trips to Asia, rather than focusing exclusively on pesticide issues, and continues to occur as we provide service and guidance to Oregon's specialty crop industries in this area.

Additionally, the Oregon Department of Agriculture was especially attuned to not raising the bar on MRL sampling and testing programs that may already be in place and did not want to create an ad hoc compulsory system by offering retailers a systematic approach, like that created with Certified Onion, Inc. in Eastern Oregon. For these two reasons, retailer appointments and that part of the work plan was not completed. Industry reconnaissance tells us that since 2009, retailers are generally asking for MRL testing programs to be done as part of a overall food safety management plan and there hasn't been significant attention paid to the sampling and analytical procedures used.

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**004 TITLE: Early Market Development and Introduction Program – Final Report**

**CONTACT NAME: Amanda Welker, Oregon Department of Agriculture**

**PHONE: 503.872.6600**

**EMAIL: [awelker@oda.state.or.us](mailto:awelker@oda.state.or.us)**

## **PROJECT SUMMARY**

Expanding and maintaining export markets for Oregon's specialty crops is vital to the future viability of Oregon's agriculture industry. The state of Oregon's natural resources provide a critical role in the state's overall economy. With an abundance of land and specialty crops and relatively low population, Oregon's population cannot consume all that is produced. Export markets provide additional economic opportunities for our specialty crop producers, processors, and rural communities. Our strategic coastal location on the Pacific Rim gives Oregon specialty crop products a competitive advantage for export into international markets.

The Oregon Department of Agriculture (ODA) identified Russia, Southeast Asia, India, and the Middle East as early markets with strong growth potential for Oregon's specialty crop industry. Oregon specialty crop producers looking at long-term production and marketing goals asked ODA for assistance in market entry and expansion strategies for these rapidly growing markets. Specifically, the potato industry had interest in seeking new markets in Southeast Asia and fruit industry in Russia, India and the Middle East.

New markets help specialty crop producers diversify and expand their customer base, which, in turn, makes them more resilient in challenging economic times. This was critically important after the 2008 financial crisis. The stagnate US economy and anticipated slow recovery ahead, made the importance of exploring developing markets quite timely. However, developing international markets takes time, patience, a further commitment to education and networking resources. ODA was well positioned, with success and experience developing other international markets, to help our specialty crop industry achieve these goals. With many industry groups competing for and focusing on the Chinese market as the major emerging market, ODA was able to showcase our specialty crop products to new buyers in new markets and capitalize on a low dollar exchange rate.

## **PROJECT APPROACH**

ODA set out to visit, research and sell to unfamiliar, growing international markets through this project. ODA visited market trade events and met with USDA staff, area importers and distributors to conduct initial market research and discuss market entry strategies as part of our continued market development strategy. ODA made visits to the Russian Far East, Qatar, Indonesia, Philippines, Vietnam, and Hong Kong where ODA visited a new trade show with a target for SE Asian fresh fruit and vegetable markets. ODA was unable to make a trip to India as planned, due to a reduction in staff resources.

Through this project and through these market visits, ODA was able to focus on relationship building. These relationships create a competitive advantage in a complex global market for our Oregon producers and processors. Many competitors are focused on larger markets like China, where Oregon specialty crops may have trouble meeting volume demands. Through these new

relationships, ODA was able to find quality market experts to contract with and develop four Oregon-centric specialty crop market research reports. These reports are critical to help ODA and our specialty crop exporters understand the strengths, opportunities and barriers to trade with these new markets. These reports will be shared with industry in meetings, company consultations, and on our website. Information will include trade barriers, tariff structures, entry strategies, ports of entry, and cold chain capacity. ODA will also highlight and feature significant findings in an emerging markets export seminar scheduled for specialty crop producers in 2013. Through this work, ODA was also able to identify speakers for these seminars through our relationship building in the identified markets.

There were two major adjustments made to the project from the original plan. The first was to include a traditional market, Japan, but with a brand new product and new retail market that ODA had never worked in before. ODA also changed focus on this project to include development and creation of media and promotional materials.

After initial meetings with importers and distributors in Russia and the Middle East, the ODA team quickly realized that we needed to make additional investment in marketing materials to distinguish, identify and promote specialty crop products from Oregon. With no modern brochures, trade show materials, web presence or social media campaign, we lacked behind our competition. The project budget was amended to contract with a design and media firm and develop promotional materials to represent the quality and diversity of our specialty crop industry.

## **GOALS AND OUTCOMES ACHIEVED**

ODA had three primary goals and outcomes expected for this project. The first was to ship two containers of specialty crop products to each market, the second was to produce marketing materials for promotional use in these new markets, and the third was to obtain market research reports for each market. The goals and outcomes of the project exceeded expectations.

We saw success with container shipments to India, Japan, Russia and Vietnam. We shipped a first shipment of pears to India to a new importer in Delhi. Although we were only able to ship one container of pears, we continue to work with this importer for future shipments of blueberries and cherries by air to India. He wants to continue imports of Oregon products, but is requesting additional support from us to promote the new products in market. The shipment and customs clearance went well, always a risk in a new market, and this kind of relationship building will help us meet long-term goals in this exciting growth market. The Japan market was the shining success story for this project. In 2010, we shipped five containers, of a new onion product developed by ODA and a grower cooperative, with help from this project. Another 12 containers were shipped in 2011 as a result our work. Russian and Southeast Asian markets also saw success in container shipments. After the work completed during the Russia visit, eight containers of root vegetables were shipped to the Far East market the following year. After the work done during the visit to Southeast Asia, a container of potatoes, onions and carrots went to a newly identified buyer in Vietnam. Overall, our goals were exceed. The initial project goals were to ship a total of eight containers to identified markets, and by the end of the project ODA was able to account for 25 containers across all markets with direct connection to this program of work.

The marketing materials were a large component of the time and effort on this project. By project completion, ODA had product brochures for most of its specialty crop industry, a social media strategy, and a new trade show booth design featuring specialty crop products. The time and cost to complete and produce the marketing materials, was largely underestimated. Therefore, we were unable to fit production and printing into the project timeline. We anticipate that materials will head to production during the first quarter of 2013.

ODA was only able to contract and obtain three of the four market research reports. We received excellent reports from Russian, Southeast Asia, and India where we were able to see the best results. We continued to have trouble connecting in the Middle East market and find limited resources there.

## **BENEFICIARIES**

Beneficiaries of this project reach a diverse group of specialty crop growers and producers. Onion growers and packers in eastern Oregon, an area typically at an inland freight disadvantage for export, were able to capitalize on a new retail model in Japan. Additional inland, typically not export competitive, potato and onion growers and packers found new and renewed markets in Indonesia and Vietnam with support from this project. We also saw a strong increase in root vegetable imports to Russia after ODA's initial visit and relationship building conducted in that market. ODA was able to clarify some of the technical trade barriers with government officials and importers to improve and expand the flow of goods.

The connections made through these market visits, helped push the awareness and competitiveness of Oregon products to new contacts. The beneficiaries listed here will obtain access to three new market research reports developed through work on this project. Collectively, specialty crop producers shipped approximately 25 containers of new specialty crop products to India, Japan, Russia and SE Asia over the project timeline. Each container's value averages \$64,000 worth of products equating to \$1.6 million in new specialty crop products sold to the project's identified early markets.

## **LESSONS LEARNED**

After meeting with market contacts, both government and private sector, ODA quickly learned that buyers in these new markets were largely unfamiliar with Oregon agriculture and the specialty crop products we had to offer them. Although, Oregon has been working in Asian markets for decades, the market development work was largely limited to Eastern Asia in recent memory. It was time to reconnect with importers and distributors to help build and grow additional markets for Oregon's specialty crop industry. Everyone we talked to in these new markets wanted literature and information on the products Oregon had to offer them and we couldn't deliver.

With this realization in place, the project team decided to amend the project scope. At this point the project was amended to first include new products for Japan and then again to amend the scope of work to more fully develop communications and marketing materials for Oregon's specialty crop industry.

We found out that traditional markets can be new and early markets for new and novel products. During outreach for this project, and after talking with eastern Oregon onion growers, we learned to discover that the Japanese, Oregon's strongest international buying partner, were interested in a new certified onion product that Oregon could provide. Since Oregon already had a strong reputation of quality products, we were able to work with existing contact to develop stronger retail relationships and develop a fresh onion program for Japan. Most of the specialty crop product success in Japan had been with the food service and ingredient sectors. This new development put a new product into a new sector in a traditional market for Oregon agriculture. We believe that we will be able to build on this model and create additional opportunity for other specialty crop products in Japan's vast retail marketplace.

A new exporter from Eastern Oregon unexpectedly sold a container of carrots to Vietnam from a connection made during the Vietnam meetings. ODA met with the buyer and he followed up and came to Oregon the next month. He purchased potatoes and onions as we had spoke about, but carrots were a completely new product we had never considered for this market.

During the market visits to SE Asia, ODA learned of a tenuous and difficult import process in Indonesia. Although we made some of the best contacts for fruit and vegetables with importers there, most told us that a pre-registration process with their equivalent of our Food and Drug Administration would could take two to three years for pre-approval. In Vietnam, we learned that many of the fruit and nursery products that importers were most interested in had no formal import process or protocol in place. ODA was encouraged to work on its government-to-government relationships in these markets to help improve the flow of trade.

ODA, and Oregon's specialty crop producers, still have much to learn in these markets. We will continue our work developing and enriching relationships to grow future business. It was recognized that this project was large and difficult to execute in the timeline allotted. We were unable to spend all of the budget at a time when our staff resources were stretched thin by budget cuts and furlough days in a weak Oregon economy. Future projects should be more targeted. This project has allowed ODA to establish a baseline of contacts and information about these new markets, and can now look forward to developing cohesive and targeted strategies in areas where ODA specialty crop products can grow and thrive.

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**005 TITLE: Southeast Asia Director's Mission – Final Report (Approved 1/30/12)**

**CONTACT: Karla Valness, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [kvalness@oda.state.or.us](mailto:kvalness@oda.state.or.us)**

## **PROJECT SUMMARY**

The ODA coordinated and completed a trade development mission to Taiwan, the Philippines, Hong Kong and Macau to introduce new specialty crop products from Oregon and Washington State through specialty product cooking demonstrations and buyer meetings. The mission consisted of growers and packers of fresh potatoes and included technical marketing development staff and a demonstration chef. The mission was led jointly by Katy Coba, director, Oregon Department of Agriculture and Daniel Newhouse, director, Washington State Department of Agriculture in partnership with the Oregon and Washington Potato Commissions and represents the first-ever joint specialty crop trade development mission between Oregon and Washington.

This collaborative project was undertaken by both the Oregon and Washington State Departments of agriculture and the Oregon and Washington State Potato Commissions to explore the market entry strategies for fresh potato and potato products in S.E. Asia. This collaboration helped create necessary critical mass to address the lack of awareness among and between importers, distributors, wholesalers and retailers in this region for both Oregon and Washington potato products. Potato producers in these states have expressed the need to find new export markets for fresh product outside of traditional processed market forms.

## **PROJECT APPROACH**

The basic, yet novel approach to this project was the cooperative effort of the two state governments and the states' respective specialty crop product commissions to come together in a joint effort for the introduction and promotion of specialty crops that benefits all parties. This joint approach was well received by all partners to the project including the producers, product commissions, state officials, in-country USDA and Embassy officials, and buyers. To realize this, the project completed the following tasks and results:

- 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 retail visits, buyer meetings and marketing briefings with USDA Agricultural Trade Office directors and staff provided valuable information to mission participants.
- 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. This was accomplished with one-on-one meetings with key trade contacts and importers, in-store product demonstration seminars and technical seminars providing an overview of certification, potato production, potato characteristics and potato varieties available from the Pacific Northwest.

- Addressed technical food safety and labeling requirements. This included work in Taiwan to ensure that Oregon and Washington fresh produce can afford easy entry in this market. Taiwan's governmental reorganization and the structure of the new Taiwan FDA as well as MRL testing requirements for fresh fruit and vegetables were highlighted as ways that Oregon and Washington can utilize to assist growers in meeting these requirements.

Participant staff conducted several activities within the scope of this project. They included market tours and meetings with produce wholesalers and importers in Taiwan and the Philippines. At these meetings current market dynamics and demand for fresh potatoes, competition from regional producers and other market forces such as utilization of rice as a the primary carbohydrate in the diet were discussed. During the meetings in Taiwan product quality issues were addressed and strategies to provide additional commercial scale sample shipments of fresh potatoes for market trail were discussed. Importers were concerned that smaller scale samples would not be suitable for larger scale commercial feed-stock chipping/cooking trails at their processing facilities. Scalability of sample size to accommodate real-world commercial trials of potatoes at full-scale production was identified by this mission as a significant constraint to market entry and market development. Following return from the mission ODA staff worked with Oregon and Washington fresh potato exporters to explore ways to ship commercial scale samples to the consignees in Taiwan.

The project staff also conducted high-level technical cooking and potato product utilization seminars for wholesale/retail/food service audiences in Manila. These cooking demonstrations were an important means of attracting a diverse mix of importers, distributors and wholesalers to the events. Because of the lack of awareness of fresh potatoes from Oregon and Washington state within the Philippines the cooking demonstrations made it possible to differentiate our potatoes against locally grown yellow Philippine or imported Chinese potatoes. Several Philippine audience members commented on the actual functional differences i.e.: specific gravity, solids and color of the Oregon and Washington potatoes as compared to traditionally available stocks of potatoes.

## **GOALS AND OUTCOMES ACHIEVED**

The goal of this project was to develop new market opportunities and support the sales of existing specialty crop products from Oregon and Washington State.

The project utilized the high profile of two state directors of agriculture and a sizable trade contingent of 18 participants to create market interest in new varieties of fresh potatoes and other specialty crop products in Taiwan, the Philippines and the Hong Kong/Macau markets. At the same time the mission gave the grower packer participants an opportunity to gather invaluable market reconnaissance and learn first hand from key importers and distributors of specialty crop products in these three markets.

The Oregon and Washington potato industry has reported an economic impact of \$2,452,000 for the period of July 2009 to July 2010 for fresh potato exports to the Philippines and Hong Kong markets.

The ODA has worked closely with packers and shippers of export potatoes for Taiwan and the Philippines. All participants have reported the project was valuable and provided meaningful understanding of the marketplace in Taiwan and the Philippines. As stated in the project objective in the 12 months since this project was completed we have reports from participant companies of export sales to both Taiwan and the Philippines of fresh market potatoes. The sales reports have not been independently validated (through PIERS or other official export data) but confidential USDA export phytosanitary certificates do appear to support the export information provided by the participants. It is our belief that we have exceeded the stated project goal of sales of at least \$100,000 from the region in the 12 months since the project was completed.

## **BENEFICIARIES**

The primary beneficiaries included growers and packers of fresh market and processing potatoes from Oregon and Washington. Secondarily, awareness of additional market opportunities was gained while in the markets for other specialty crop products.

## **LESSONS LEARNED**

### **Philippines**

The Philippines is still a difficult market for US specialty crops. The import and distribution sector is highly integrated and purchasing retail, foodservice and wholesale products. Retail products are the easiest entry into the Philippine market, although product registration is a long, arduous process for new to export companies. Fresh fruit and vegetables, including fresh potatoes, still need an import permit to enter the country and non-tariff trade barriers and an opaque issuance process hinders permits.

However, there are significant export opportunities in the Philippines, and more work needs to be done there. Delegates experienced high interest from the culinary community in the colored flesh and fingerling potato varieties that were sampled as well as interest in new chip-stock varieties.

### **Hong Kong**

Hong Kong continues to be a growing market for Oregon and Washington specialty crops and as such Northwest potato producers experienced strong test sales of fingerling potato medley in Park n' Shop stores. However, working with a large chain in this case has proved challenging. In this case, Park n' Shop's interest in the medley product from marketing staff during the promotional visits and test sale period was strong. However, securing and maintaining the interest of the "buying office" to transition this to a year 'round procurement commitment and offering has been very difficult. Nonetheless, efforts have continued and if progress can be made to overcome this challenge, this could be a significant opportunity for fingerling and colored specialty potatoes from Oregon.

### **Macau**

Macau continues to be a market of interest for Northwest specialty products, but the culinary foodservice sector needs to be further explored. Most of the products coming into Macau are coming in from Mainland China, which has additional challenges with fresh and frozen fruits

and vegetables from the US. Price is also a concern in this market because the bulk of the demand is for foodservice products going into the employee cafeterias, rather than the smaller volumes going into high-end restaurants. Work continues in the region with the culinary community, and longer-term opportunities exist for high-end products like wine and specialty products as the economy can recover from its current state.

### **General**

There is significant benefit in developing and coordinating joint missions between Oregon and Washington specialty crop producers. The lessons learned, opportunities revealed and results achieved indicate this cooperative, joint state effort could serve as a model for other appropriate specialty crop projects. In addition, adding the participation of the directors from each State Department of Agriculture increased the opportunity to discuss issues relating to market entry requirements and support buyer interest for the broader Northwest region.

We do not plan to submit a change to the budget or scope of this project. The balance of the funds will be requested for use in a new project to be submitted by February 2012 with the funds being obligated by September 30, 2012 and disbursed by December 2012.

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**006 TITLE: Specialty Crop Lab ISO 17025 Accreditation Project – Final Report**

**CONTACT NAME: Kathleen Wickman, Oregon Department of Agriculture**

**PHONE: 503-872-6633**

**EMAIL: [kwickman@oda.state.or.us](mailto:kwickman@oda.state.or.us)**

**PROJECT SUMMARY**

Specialty crops from Oregon are facing increasing competition in their marketplaces. One tool to gain advantage is supplying documentation of product quality with laboratory results. The assurance that a “good” result is produced by a laboratory is paramount to that result being meaningful to the user of the data. This assurance may be gained through the laboratory participating in an accreditation program. Results from an ISO (International Standards Organization) accredited laboratory will provide added credibility to the ODA (Oregon Department of Agriculture) certifications related to Oregon’s specialty crops. The ODA’s Laboratory Services used funding to facilitate its preparation of a quality management system meeting ISO 17025:2005 requirements towards accreditation.

The ODA’s MRL (Maximum Residue Level) project focuses on the identified specialty crops: onions, potatoes, blueberries, cherries and pears is a primary reason the ODA laboratory has begun to pursue ISO 17025 principles and practices. The purpose of these management practices and eventual accreditation is to enhance the status and competitiveness of the laboratory to provide voluntary certification services for specialty crops. The training and management preparation project will solely be to enhance specialty crops participating in the MRL project. However, the laboratory provides services for other commodities and regulatory programs and the future will likely require inclusion of some portion of testing into an accreditation program. Other state funds will be used to cover areas not associated with the ODA MRL project.

**PROJECT APPROACH**

ODA Laboratory Services personnel received training on site and off site to understand the requirements of being an ISO17025:2005 accredited laboratory. Training was provided by A2LA an ISO accrediting body, which the laboratory intends to use as the accrediting authority when ready for initial audits. The laboratory manager and quality assurance officer travelled to North Carolina Department of Agriculture to observe and speak with their quality assurance team, which has already successfully participated in several accreditation cycles.

The ODA Laboratory Services developed an implementation plan based on self-audit assessment with a focus on methods supporting analytical needs of the specialty crop community such as pesticide residues. Below is a copy of the plan:

Process/Policy/Procedure to be implemented	Related ISO section	Document ID	Doc format ISO compliant? (Y/N)	Target date for implementation	Implementer	Approving official
Corrective Actions-Monthly Review	4.11	N/A	N	11/2/12	VMT	KSW
A2LA call related to PTs	4.15.1	N/A	N/A	11/16/12	VMT	KSW
Form Completion Procedure	4.13.2	GD121008	N	11/16/12	VMT	KSW

Equipment IDs phase 1-towards traceability	5.6.1	N/A	N/A	11/28/12	SNL	KSW
Month Section Point of Contact QA meeting	4.2.1	N/A	N/A	11/29/12	VMT	KSW
Corrective Actions-Monthly Review	4.11	N/A	N	12/4/12	VMT	KSW
Month Section Point of Contact QA meeting	4.2.1	N/A	N/A	12/19/12	VMT	KSW
*Identify new staff in need of ISO training	5.2.1 - 5.2.2	N/A	N/A	1/1/13	VMT	KSW
Quality Statement- Draft	4.2	*	N/A	1/11/13	VMT	KSW
Update/make ISO compliant - SOP 7000.02 pH Operation	5.4.1	*	N/A	1/31/13	TAJ	KSW
Update/make ISO compliant - SOP for pH Determination	5.4.1	*	N/A	1/31/13	TAJ	KSW
Conflict of Interest/Ethical Conduct Procedure	4.1.5	N/A	N/A	1/31/13	KSW	KSW
Update/make ISO compliant - SOP 4002.01000 Salmonella	5.4.1	*	N/A	1/31/13	JLM	KSW
Write ISO compliant - Ecoli 0157 SOP	5.4.1	*	N/A	1/31/13	JLM	KSW
Internal Audit SOP- draft	4.14	*	y	2/1/13	VMT/KSW	KSW
PT Procedure and schedule	5.9.1	*	y	2/1/13	VMT	KSW
Training SOP -Draft	5.2.1	*	y	2/1/13	all staff	KSW
Training Session on Document Control Procedure	4.3 and 5.2.2	N/A	N/A	2/7/13	VMT	KSW
Training Session on PT Procedure and schedule	5.9.1 and 5.2.2	*	N/A	2/7/13	VMT	KSW
Training Session on Conflict of Interest/Ethical Conduct	4.1.5	N/A	N/A	2/7/13	KSW	KSW
Management Review Procedure and Schedule	4.15	*	N/A	2/28/13	KSW/VMT	KSW
Review of Requests, Tenders And Contracts Procedure	4.4.1	*	N/A	2/28/13	KSW	KSW
Subcontracting Procedure	4.5	*	N/A	2/28/13	KSW	KSW
Customer feedback	4.7	N/A	N/A	3/1/13	KSW/JRB	KSW
Complaints	4.8	N/A	N/A	3/1/13	KSW/JRB	KSW
Training Session on Training SOP -Draft	5.2.1 and 5.2.2	*	y	3/7/13	VMT	KSW

Training Session on Review of Requests, Tenders And Contracts Procedure	4.4.1 and 5.2.2	*	N/A	3/7/13	KSW	KSW
Training Session on Subcontracting Procedure	4.5 and 5.2.2	*	N/A	3/7/13	KSW	KSW
Document Control Procedure	4.3	N/A	N/A	3/29/13	VMT	KSW
Root Cause Analysis Training	4.11.2	N/A	N/A	4/15/13	VMT	KSW
Training Session on Management Review Procedure and Schedule	4.15	*	N/A	4/16/13	VMT	KSW
Improvement and Preventative Action Procedure	4.12	N/A	N/A	4/30/13	VMT	KSW
Handling/Protection of Electronic Data and computer resources Procedure	4.13.2	N/A	N/A	4/30/13	KSW/VMT	KSW
Control of Records and Record Retention Procedure	4.13	N/A	N/A	4/30/13	KSW	KSW
Control of Records and Record Retention Procedure	4.13 and 5.2.2	N/A	N/A	4/30/13	KSW	KSW
Measurement Traceability Procedure	5.6.3.2	*	N/A	4/30/13	all staff	KSW
Reference Materials Procedure	5.6.3.2	*	N/A	4/30/13	all staff	KSW
Quechers SOP	5.4.1	*	N/A	4/30/13	level 2	KSW
GC-MS/MS multiresidue SOP	5.4.1	*	N/A	4/30/13	level 3	KSW
LC-MS/MS multiresidue SOP	5.4.1	*	N/A	4/30/13	level 3	KSW
Environmental Conditions Procedure	5.3.1-5	N/A	N/A	5/1/13	level 2	KSW
Training Session on Measurement Traceability Procedure	5.6.3.2 and 5.2.2	*	N/A	5/9/13	VMT	KSW
Training Session on Improvement and Preventative Action Procedure	4.12 and 5.2.2	N/A	N/A	5/9/13	VMT	KSW
Training Session on Handling/Protection of Electronic Data and computer resources Procedure	4.13.2	N/A	N/A	5/9/13	VMT	KSW

Training Session on Reference Materials Procedure	5.6.3.2 and 5.2.2	*	N/A	5/9/13	all staff	KSW
Training Session on Environmental Conditions Procedure	5.3.1-5 and 5.2.2	N/A	N/A	5/14/13	level 2	KSW
Method Selection and Approval Procedure	5.4.2	N/A	N/A	5/22/13	level 3	KSW
Competency Procedure	5.2	N/A	N/A	5/31/13	vmt	KSW
Purchasing supplies, services and equipment Procedure	4.6	*	N/A	6/1/13	SNL	KSW
Method Validation, Detection Limits and Quantitation Limits Procedure	5.4.5.2	N/A	N/A	6/12/13	VMT	KSW
Training Session on Purchasing supplies, services and equipment Procedure	4.6	*	N/A	6/18/13	SNL	KSW
Training Session on Method Selection and Approval Procedure	5.4.2 and 5.2.2	N/A	N/A	6/18/13	level 3	KSW
Conduct Management Review	4.15.1	N/A	N/A	6/19/13	KSW/VMT	KSW
Training Session on Method Validation, Detection Limits and Quantitation Limits Procedure	5.4.5.2	N/A	N/A	7/24/13	VMT	KSW
Ensuring Quality of Test Results (Quality Control)	5.9.1	N/A	N/A	8/31/13	VMT	KSW
Equipment Maintenance and Calibration	5.5	N/A	N/A	8/31/13	level 3	KSW
Review, Approval and Reporting of Data	5.10	N/A	N/A	8/31/13	level 3	KSW
Uncertainty Procedure	5.4.6.2	N/A	N/A	8/31/13	all staff	KSW
Sample Handling Procedure	5.8.1	N/A	N/A	8/31/13	all staff	KSW
Training Session on Uncertainty Procedure	5.4.6.2 and 5.2.2	N/A	N/A	9/18/13	VMT	KSW
Training Session on Sample Handling Procedure	5.8.1 and 5.2.2	N/A	N/A	9/18/13	JRB	KSW
Training Session on Equipment Maintenance and Calibration Procedure	5.5 and 5.2.2	N/A	N/A	9/18/13	CDJ/JLM	KSW
Training Session on Ensuring Quality of Test Results (Quality Control) Procedure	5.9.1 and 5.2.2	N/A	N/A	9/25/13	VMT	KSW

Training Session on Review, Approval and Reporting of Data Procedure	5.10 and 5.2.2	N/A	N/A	10/23/13	VMT	KSW
Internal Audit (ISO 17025)	4.14	N/A	N/A	7/29/13 - 8/2/13	VMT/KSW	KSW
QMS - shell		*	N/A	On-going	all staff	KSW/LH
Webinar Training on ISO 17025 standard	5.2.2	N/A	N/A	when announced	KSW/VMT	KSW

Updating Standard Operating Procedures for the analysis of pesticide residues in commodity crops are being expanded to meet ISO17025 requirements.

## GOALS AND OUTCOMES ACHEIVED

- ODA Laboratory Manager and Designated Quality Assurance Officer attended off site training in Indianapolis, IN entitled ISO/IEC 17025:2005 Assessment Training in May 2010. The training gave an in-depth review of requirements and how to assess their achievement. Information learned will have applications during implementation of the quality management system, training staff and audit facilitation.
- Laboratory staff and certification specialist, Lindsay Eng, attended on-site training entitled ISO/IEC 17025:2005 and Laboratory Accreditation in June 2011. This training fulfilled the ISO requirement of staff trained in requirements of ISO17025:2005 accreditation. This general knowledge will assist staff as they help develop and implement and document processes and procedures critical to a quality management system.
- Laboratory manager and designated quality assurance officer developed a general implementation plan in September 2011. The plan provides for general guidance on the next steps to be taken and includes periodic reviews since the entire process is continually evolving through continuous improvement.
- A dedicated Quality Assurance Officer position was developed, advertised and filled in December 2011. The position was offered to Virginia Tarango, the designated quality assurance officer. Duties of this position are to develop, train, implement and maintain a quality management system for the laboratory meeting ISO17025:2005 standards. The hiring of this position demonstrates the department's commitment to developing and maintaining a quality management system.
- Laboratory manager and Quality assurance officer travelled to Raleigh, NC to visit and learn from the quality assurance team at North Carolina Department of Agriculture in June 2012. This team has successfully developed, implemented, maintained and grown their ISO17025:2005 accreditation scope. This visit provided information on real world experiences of a laboratory during similar testing. Information learned will continue to assist in the ODA's lab development of our quality management system and provide a source for general questions as time goes on.
- The ODA expanded the number of specialty crop commodity groups that are utilizing and benefiting from the laboratory results and services. The goal was to expand from 1 commodity (onions) to between 2-5 commodities (with the targets being pears, blueberries, cherries, potatoes). The ODA reached the goal by expanding services to 2

additional commodities (blueberry and potatoes) and by serving 5 additional companies (3 blueberry growers, and 2 potato growers).

### **BENEFICIARIES**

Customers of ODA laboratory services have been informed of the laboratory's plan and dedication to achieving ISO17025:2005 accreditation. The customers are knowledgeable of the benefit they will garner when receiving test reports from an accredited laboratory.

### **LESSONS LEARNED**

The process of achieving accreditation takes much thought and time in preparation. Dedicating a position to quality assurance will be extremely important as we develop, train, implement and maintain a quality management system and scope of testing to meet the specialty crop customers' needs.

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**007 TITLE: Oregon Specialty Crops to Asia 2010 – Final Report (Approved 1/27/11)**

**CONTACT: Patrick Mayer, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [pmayer@oda.state.or.us](mailto:pmayer@oda.state.or.us)**

**PROJECT SUMMARY**

Oregon specialty crops face many challenges in developing and expanding Asian markets. These challenges include complex and changing import regulations, a lack of knowledge of importers and distributors in the region, consumers lacking the knowledge of products, and competition from national and international organizations with more funding and in-market connections. The activities executed were designed to address these constraints in each market as necessary to engage in new trade and expand on existing opportunities. Timing of these activities was critical, as the weak dollar combined with a recent rash of food safety related incidents in Asia (involving mostly Chinese origin foods) have heightened interest in and demand for US and Oregon specialty crop products. This project is a continuation of both a previous specialty crop grant submitted by a consortium of wineries as well as other-funded efforts by the Oregon Department of Agriculture to promote Oregon specialty crop products in key Asian markets.

**PROJECT APPROACH**

This proposal brought together Oregon specialty crop producers and exporters together with the ODA to execute a trade mission and series of promotional events in Japan, China, and Hong Kong in March, 2010. Activities included an Oregon booth at the FOODEX trade show in Japan, followed by targeted trade events in Hong Kong and Shanghai, including business meetings, product showcases, and trade tastings.

At FOODEX, the ODA organized, designed, constructed and managed a 3 booth Oregon mini pavilion located within the larger US pavilion. 11 Oregon firms representing a variety of specialty crop products participated in the show, which this year attracted over 80,000 trade and media visitors over four days. Booth traffic at the show was busy each day, with a strong mix of buyers from both Japan and neighboring regions (China, Korea, Taiwan, Hong Kong, SE Asia, etc.). All attendees reported either new sales or increased sales to existing customers in the Asian marketplace as a result of the show.

Continuing from Japan to Hong Kong, the ODA, in partnership with the USDA Agricultural Trade Office in Hong Kong and local importers, organized a variety of activities to promote Oregon wines and berry products to the Hong Kong trade. Included over the three days were an in-depth market briefing presentation, guided retail store audits, targeted one on one meetings with key retailers, importers, distributors and food service representatives, and two separate Oregon product promotion events, held at the American Club and JW Marriott Hotel. Meetings were tailored to match each individual company's needs and interests in the market. The product promotional events were designed to provide members of the retail, wholesale, import/distribution and restaurant trade the opportunity to try the products in an optimum, local setting and further network with Oregon participants. The meetings and attendance at the two

events combined yielded contact with over 100 members of the trade Hong Kong trade. Many of the products featured were new to the Hong Kong and South China market.

Shanghai was the final location where again the ODA partnered with USDA's Agricultural Trade Office and local contacts to organize a variety of trade promotion activities. Included over the two and a half days were an in-depth market briefing presentation, guided retail store audits, targeted one on one meetings with key retailers, importers, distributors and food service representatives, and an Oregon product promotional event held at Shanghai Portman-Ritz Carlton. Activities were well received by approximately 75 members of the Shanghai area trade.

Overall, participants were quite pleased with the quality of contacts and information gained as a result of the activities—and were particularly surprised with the quality and level of interest of firms in Shanghai. Individual firms contributed financially toward the costs of booth space and travel, providing samples of products and other promotional materials. USDA ATO staff and on the ground contractors in Hong Kong and Shanghai were instrumental in coordinating tours and individual company meetings in their respective cities.

### **GOALS AND OUTCOMES ACHIEVED**

Activities included an Oregon mini pavilion at the FOODEX trade show in Japan, targeted trade events in Hong Kong and Shanghai, including product showcases and trade tastings.

Outcomes as compared with project activities goals were as follows:

1. As of 6 months since activity completion, 10 new Oregon specialty products were introduced, involving both new to market products as well as market expansion of products to new customers within existing markets (vs. goal of 10-15).
2. As of 6 months since activity completion, the value of new sales confirmed through project activities is currently \$330,000 (vs. goal of \$300,000).

Results from these activities are from company surveys and reports. Several firms report opportunity for further increased product introductions and sales volumes in the next 6-12 months as a result of these activities.

### **BENEFICIARIES**

Beneficiaries of this project represent producers and processors of multiple fresh and processed small fruits, wines, craft brewers and distillers. The product introductions and sales figures indicated above are a clear measurable outcome from these activities. Additionally, many new company introductions gained through participation in these activities are still being developed and evaluated for future business relationship potential.

### **LESSONS LEARNED**

Overall participants were quite pleased with the results of the project's promotional activities. Actual outcomes were generally in line with or exceeded projections.

The FOODEX trade show remains the largest and most influential food and beverage show in Asia, and has grown in scope in terms of drawing buyers from emerging regional economies in

China and SE Asia. Participants were pleasantly surprised with actual results and projected future sales opportunities originating both within Japan and in these rapidly developing markets.

Hong Kong activities were equally well received. Despite being a relatively developed market compared with the Chinese mainland, Hong Kong is still new territory for many Oregon specialty crop exporters. However, it is clear that Hong Kong's status as a conduit has expanded beyond the logistical sense, morphing into a key influencer for intellectual thought and lifestyle/consumer trends across greater China. Additional follow up efforts are needed over time to raise awareness of Oregon products and facilitate increased market penetration.

Shanghai activities perhaps provided the most pleasant surprise to participants in terms of sincere market reaction and interest in the featured Oregon specialty products. While China is widely purported as a boom market opportunity across economic sectors, the food trade with China is a different story. China is a strong producer and net exporter of agricultural products in its own right, competing with the US in other markets, and as a buyer, historically tends to put a premium on pricing relative to quality or value added product utility. However, with the continued emergence of the Chinese middle class, changing tastes, improvements in logistics infrastructure and cold chain management, and concerns within China over domestic food safety, US food exporters are in perhaps the strongest position ever to penetrate the Greater China market. Key, high profile members of the Shanghai food and beverage trade attended the one on one meetings and product tastings offered as part of the project. There were also a few Shanghai companies that expressed interest in partnering with Oregon firms on joint product promotion of selected small fruit items and wines. Participants were actually a bit shocked with such a positive reception in a market that so far has been difficult to access; perhaps the one shortfall, in hindsight, may have been that more time was not dedicated to Shanghai-specific development activities. In order for the positive momentum to be maintained in Shanghai, a continued constant market presence is required, and follow up will be critical to realizing positive outcomes.

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**008 TITLE: Supporting Community Gardens – Final Report**

**CONTACT: Lora Price, Frazer Community Garden**

**PHONE: 503-453-0448**

**EMAIL: [Lorapdx@gmail.com](mailto:Lorapdx@gmail.com)**

**PROJECT SUMMARY**

Frazer Park, a small neighborhood park, contained a large underutilized expanse of pavement in very deteriorated condition that sent approximately 226,000 gallons of water into a storm drain system annually. It was the desire of the Rose City Park Neighborhood Association Board and a small group of Rose City Park Neighbors to address this problem while at the same time, create a real amenity for the neighborhood by building a community garden. After a year of planning and neighborhood input, it was also found that the soils beneath the pavement contained elevated levels of lead residues. A thorough soil test of the proposed garden site was carried out through the Bureau of Environmental Services' Brownfields Program, which determined exact levels and extent of lead in the soil in the garden area. The final garden development plan has removed sub soils to a 1-foot depth and imported clean fill top soil.

The re-greening of this 10,000 Sq. Ft. paved area with a thriving community garden has improved the soil and reduced stormwater runoff through better infiltration, improved water quality, vegetation and wildlife pollinators in the park. On 2 sides the garden is bordered by blueberry bushes and by Native plants designed to take up stormwater and attract pollinators. The social life of the park has also improved as a result of regular community use of the garden.

The creation of the community garden has optimized neighborhood activity in the park and attracted a larger, more diversified community. Four work parties involving several hundred volunteers were carried out in the building of the garden; First through a Depave event in the fall where 70 plus volunteers helped remove pavement, and a series of 3 work parties in the spring, coordinated with Hands on Portland to spread mulch, build paths and garden plots and finally plant natives and blueberries. The grand opening of the garden held April 28<sup>th</sup> attracted over 80 residents and dignitaries. Activities included assignment of plots to new gardeners, children painting of plywood cutouts of pollinators, refreshments, and dedication speeches.

The need and demand for this garden was proven when plots were filled within 2 hours of opening up registration and a waiting list of just as many residents was immediately formed. The community garden now provides much "in demand" access to growing food for many families who would not otherwise have the opportunity to do so in this neighborhood. Gardeners are also encouraged to donate their extra produce to local food banks through the Produce for People Program administered by Parks.

**PROJECT APPROACH**

**In June and July**, Commissioner Fish and Portland Community Gardens pledged to RCPNA they would supplement the attained grants by covering the remaining costs for implementing of Fraser Park Community Garden. Depave took the lead to secure permits and solicit bids for work from Contractors. The Portland Parks installed the water meter and main line to the garden.

**In August,** All partners (Depave, Rose City Park Neighborhood Association (RCPNA), Portland Parks, Albina Early Head Start School, and Friends of Portland Community Gardens (FPCG)) helped prepare for the depaving ground breaking event. This included laying out the garden dimensions, pre-cutting pavement, bringing 10 dumpster bins on site, outreach to volunteers, event planning, access to facilities, and securing refreshments for volunteers. City Commissioner Nick Fish joined our team of dedicated volunteers in prying up chunks of pavement the sunny morning of August 20<sup>th</sup> . Approx.70 volunteers participated. Following that, a contractor removed all of the gravel base from the garden site.

**In September,** a one foot depth of contaminated subsoil was removed and replaced with clean soil fill. Irrigation lines and standpipes were installed by the City.

**In October,** the Chain link garden fence and gates were installed. Compost was delivered to the site but was unable to be spread due to lateness of the season. Two raised accessible garden beds were constructed by community volunteers instructed by Portland Parks.

**In February,** gardeners signed up for plots. A Hands On Portland volunteer work party was held to spread compost. Over 20 volunteers participated. Rose City Park NA secured a donation and delivery of two demo sheds, a barn shape and typical truss, from Tuff Shed that is based in the neighborhood.

**In March,** A second volunteer work party coordinated by Hands on Portland was held on March 24<sup>th</sup>. With assistance from Portland Parks, approximately 20 volunteers excavated pathways then layered them with gravel and bark mulch, to demarcate garden plots. The demo sheds were cut in half and then reconstructed into an 8' x 10' garden shed with a clear Plexiglas roof. The design and construction of the shed was completed by Michael Roth, RCPNA Board Chairman, with support by other board members.

**In April :** A collaboration of funds from RCPNA and FPCG, sponsored \$900 worth of plant material purchased and delivered to the site by Friends of Portland Community Gardens. About 20 volunteers coordinated by Hands on Portland and arrived for the 3<sup>rd</sup> work party. FPCG's Lora Price instructed the location and installation technique of the planting of 18 blueberry shrubs and approximately 65 native plants. Portland Parks personnel provided tools and water for the site construction. The tool shed was completed by Rose City Park Neighbors.

The Grand Opening Ceremony was held on April 28<sup>th</sup>. Outreach and preparations were carried out by the City, Rose City Park neighbors and FPCG. Access to restroom facilities was provided by the Albina Early Head Start School that abuts the site. The new garden shed was stocked with tools, hoses, and wheel barrows of which half were donated by the NE Tool Library and the remaining purchased with a RCPNA donation. New gardeners were assigned their plots and provided a training on soil preparation. A children's garden art activity of painting plywood cut outs of insect pollinators took place and the fence is now decorated with colorful animals and insects.

## GOALS AND OUTCOMES ACHEIVED

Objectives	Outcomes
Remove 10,000 SF underutilized pavement and create more pervious surface the reduce stormwater runoff entering the storm drain system (approx. 226,000 gallons annually)	Met. 10,000 SF of pavement removed. With rain garden and garden in place, there so far has been no runoff into the catch basin.
Remove gravel and sub soils containing lead residues	Met. 1-ft + depth of clean top soil was imported, bringing garden site up to grade.
Amend and improve soil for water infiltration, pH and nutrients for growing vegetable crops	Met. 12 CY YDS of Compost and organic fertilizers were added
Expand community use of Frazer Park	Met. Full sign up for 50 plots occurred in 2 hours. Approximately 200 volunteers helped to build the garden over 4 6-hour work parties. Kick-Off and Grand Opening events attracted families with children and elderly couples who either pitched in or lent their support from the sidelines.
Create 50 new garden plots and two accessible raised bed gardens	Met. 50 plots created and 2 4'x8' accessible raised beds were built
Establish rain garden swale along south and west border of the garden to receive stormwater runoff.	Met. 15 species of native plants (65 plants) were planted by volunteers
Establish perennial blueberry shrubs and dwarf fruit trees	Met. 18 blueberry bushes were planted by volunteers. We opted not to plant fruit trees due to care requirements and planted more blueberries instead.
Conduct outreach to provide underserved residents an opportunity to have a garden plot	Met. <u>RCPNA</u> Community Garden Committee distributed 500 fliers, printed by <u>Parks</u> , to apartment complexes located within walking distance of the garden site. Announcements were also placed in the neighborhood newsletter and on city-wide websites.
Install a demonstration rainwater collection system	Postponed
Use the garden for outreach and education events	Met. 4 volunteer work parties were held prior to the opening. <u>FPCG</u> provided training on plant location and installation methods at the 4 <sup>th</sup> work party. <u>Portland's Community Garden Program</u> provides garden training for new gardeners.
Provide a garden space to Head Start School and their families	Met. A plot has been assigned to Head Start school.

## **BENEFICIARIES**

Provide a description of the groups that benefited from the completion of this project. Clearly state quantitative measures of the beneficiaries from the project's accomplishments and/or the potential economic impact of the project.

- Fifty new families are now growing their own food in a garden plot what did not have access to gardening before.
- Two participants have access to 2-foot high handicap accessible garden beds on pavement.
- Albina Head Start can now introduce 30+ children to gardening with their plot in the garden which is adjacent to their schools.
- 25+ garden participants have received training and coaching in the garden during this first season of opening to help them successfully create bountiful crops.
- Rose City Park Neighborhood Association has benefitted in a number of immeasurable ways through championing this grass roots garden project in the neighborhood. It has built new relationships, added vitality to the park, fostered new relationships with neighborhood business and has increased the membership base. I have received several unsolicited comments from gardeners and neighbors how the garden has been such a positive change for the neighborhood bringing the community together in a way that did not exist before.

## **LESSONS LEARNED**

Two major challenges distinguished this project and it took unwavering championing and a lot of tenacity to see it through. Being located in a public park, having a thorough public planning process was essential. Originally, existing many users of the park did not look favorably to something new being proposed. The end design after a year of planning had formal approval through the neighborhood association and buy-in by the neighbors.

The fact that the garden was to be located in an existing paved area means that there are unknowns beneath. Testing before removing the pavement is pretty essential and in this case the first test showed unacceptable levels of lead (a first ever result). We were fortunate to have the aid of the City's Brownfield Program, which funded a more detailed soil testing and also professional consultant recommendations on how to proceed with construction. This changed both the timeline and cost of the project.

When removing pavement (and the gravel beneath) there is need to import large quantities of soil and soil amendments. Be sure to calculate for 50% more import material than what is removed to account for the "fluff" factor of uncompacted materials. It took some creative searching to find ready supplies of good topsoil to replace the soil we removed. The unknown costs in this type of excavation were defrayed when the City provided the disposal of the contaminated gravel and soil excavated from the site.

With pavement removal happening at the end of August (which is what worked for Depave's schedule), it gave too little wiggle room for the soil work. Portland Parks had 3 gardens under construction at the same time and Frazer's schedule ended up getting pushed back as a result, so that the compost could not be tilled into the soil in the fall. This was less than desirable. Rugged volunteers ended up spreading the compost in the spring and gardeners had to turn and mix the

soil in each of their plots to have them grow ready. All turned out fine but it was less than ideal for providing a fertile soil with good tilth to start the garden.

The creation of this garden took over 3 years. The stalwart support of the Rose City Park Neighborhood Association Board, Land Use & Transportation Committee, and Community Garden Sub-Committee and that of City Commissioner Nick Fish was essential. The garden location and sizing process was challenging at times related to determining an appropriate site within the 4-acre Frazer Park. A small group of opponents became re-fueled when the first soils test came back with 8xs the acceptable level of lead contamination at selected site. Leslie Pohl-Kosbau, then Director of Portland Community Gardens, together with Commissioner Fish's office supported BES to sponsor the Brownfield Study of the site. Although lower levels of lead, less than the 200 mg/kg threshold, was confirmed at the site, the City approved the site as acceptable for a garden only with 1' of subsoil removed & replaced with clean soil. It may be prudent to anticipate additional soil testing costs for urban garden sites. However; the timing of the initial soils test in the process would likely remain the same.

Having the many partners we did working on this project was the most effective "marketing and outreach plan" one could have. People have real pride and ownership when they are involved in creating something for the community and this good will and energy carries over into ongoing care for the garden. It is very heartening and rewarding to witness the joy and satisfaction of volunteers building the garden, an instant full sign up of gardeners and many casual passers by that are impressed and happy to see this amenity added to their neighborhood park. Tenacity pays off.

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**009 TITLE: Oregon Fruit and Berry Culinary Promotion Campaign – Final Report**  
(Approved 1/30/12)

**CONTACT: Laura Barton, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [lbarton@oda.state.or.us](mailto:lbarton@oda.state.or.us)**

**PROJECT SUMMARY**

This project was designed to create a variety of useful point-of-sale materials and tools using a unified theme to promote Oregon fruits and berries in retail and foodservice settings; to establish fruit industry partnerships with retailers and foodservice operators and to promote and sell more Oregon fruit and fruit based products.

The project collaborator, Arnica Publishing/Arnica Creative, planned to offer a new Oregon fruit cookbook telling the story of the history of the Oregon fruit industry, to use as a tool to further support promoting and selling Oregon fruit. Arnica also planned marketing and media support to draw attention and increase demand for Oregon fruits and berries.

Project deliverables: useful and attractive recipe brochures, postcards, self stick labels, an on-line photo gallery (found at [http://egov.oregon.gov/ODA/gallery\\_luscious\\_fruit.shtml](http://egov.oregon.gov/ODA/gallery_luscious_fruit.shtml)) and artwork adaptable to different retail environments. The cookbook was not published, therefore retail promotions using the cookbook as a fruit purchasing incentive never materialized. Several new and renewed relationships with retailers and distributors are continuing.

**PROJECT APPROACH**

Oregon fruit commodity commissions, retailers and distributors were identified by ODA staff and approached by ODA and Arnica to gauge interest in partnering and their need for point of sale materials and promotional tools for fresh and processed fruit products.

After some initial visits and phone conversations, Arnica Creative developed a “Luscious Oregon Fruit – you just have to taste it” theme and logo font style. ODA used an RFP process to contract with a photographer and writer. Recipe brochures, self stick labels were developed and printed; a portfolio of photos established as an on-line gallery that could be downloaded and adapted for promotions in stores and foodservice establishments.

Retail produce buyers and distributors were visited over several months and presented with the final POS materials and suggested promotional concepts: Lambs stores (5); Market of Choice (7); New Seasons Markets (10); Roth’s Stores (10); Safeway Stores (117) OR/SW Washington; Fred Meyer Stores OR/SW Washington (134); WINCO stores (78); Span’s stores (3). Produce and main line Distributors called on: Charlie’s Produce; Pacific West Coast Fruit; Foodservices of America; Unified Grocers.

Working collaboratively with Arnica Publishing/Arnica Creative created a variety of challenges due to their on-going staff changes, delays in printing of the recipe brochures, postcards and especially the non publication of their Luscious fruit cookbook.

The photographer's overseas schedule also created delays in the ability to develop the on-line accessible photo gallery.

### **GOALS AND OUTCOMES ACHIEVED**

The project goal stated 25 retail outlets would request and use the Luscious Oregon fruit promotional materials. More than 25 retail outlets were made aware of and received samples of the promotional materials available to them, however no specific promotions or sales were attributed this project.

No retailers were able to use the Arnica cookbook as a promotional tool because it was not published and no retailers picked up the promotional materials as a stand-alone promotional piece.

High quality materials, including photography of fruit adaptable to different retail environments were developed and made available. To-date one known event used some of the Luscious fruit photography, an Oregon berry festival, held in the summer of 2011 in cooperation with three Oregon berry commissions and one berry association. The photography and promotional materials are also available for use and can be found on ODA's website (found at [http://egov.oregon.gov/ODA/gallery\\_luscious\\_fruit.shtml](http://egov.oregon.gov/ODA/gallery_luscious_fruit.shtml)).

### **BENEFICIARIES**

Three Oregon berry commissions and one berry association (cranberry growers) representing several hundred growers will have access to tested recipes, high quality photographs to use in promotional activities as a result of this project.

Several hundred Oregon retail and foodservice locations have access to tested recipes, high quality photographs to use in promotional activities.

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

### **LESSONS LEARNED**

Projects that rely on key collaborative partners need to be carefully vetted to make sure that the partner can deliver. Issues such as juggling multiple projects at the same time, economic stability and staff trained to do the assigned jobs were all factors that affected this project.

Designing and implementing unified themes for retail promotion isn't always desired, as some retailers prefer to create their own unique look.

**S10 TITLE: Integrated Pest Management, Conservation Programs and Reduction in Environmental Impacts for Specialty Crop Industries in Umatilla County, Oregon with Blue Mountain Horticultural Society – Final Report (Approved 1/30/12)**

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**CONTACT: Todd Davis, Blue Mountain Horticultural Society**

**PHONE: 509-520-2986**

**EMAIL: [tdavis@applelovers.com](mailto: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 and 4 in 2010. It has been concluded that the spread of this pest has been contained in the Pendleton area although eradication is still the key (OUTCOME).
- 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 300 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 area wide 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 area wide program is required for maximum effect in the entire Valley.

**Action:**

- A total of 661 Delta traps (1X lures) were placed in 2554 acres of apples 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/sites/default/files/trap\\_spreadsheet\\_072711.xls](http://extension.oregonstate.edu/umatilla/mf/sites/default/files/trap_spreadsheet_072711.xls))
- 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](http://uspest.org/risk/codling_moth))
- 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 they fly above the trees looking for males



Figure 2. 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).

**Results/Impact:**

- The website has been in place throughout the season [http://uspest.org/risk/codling\\_moth](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 [http://uspest.org/risk/walla\\_walla\\_codling\\_moth\\_movie](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.

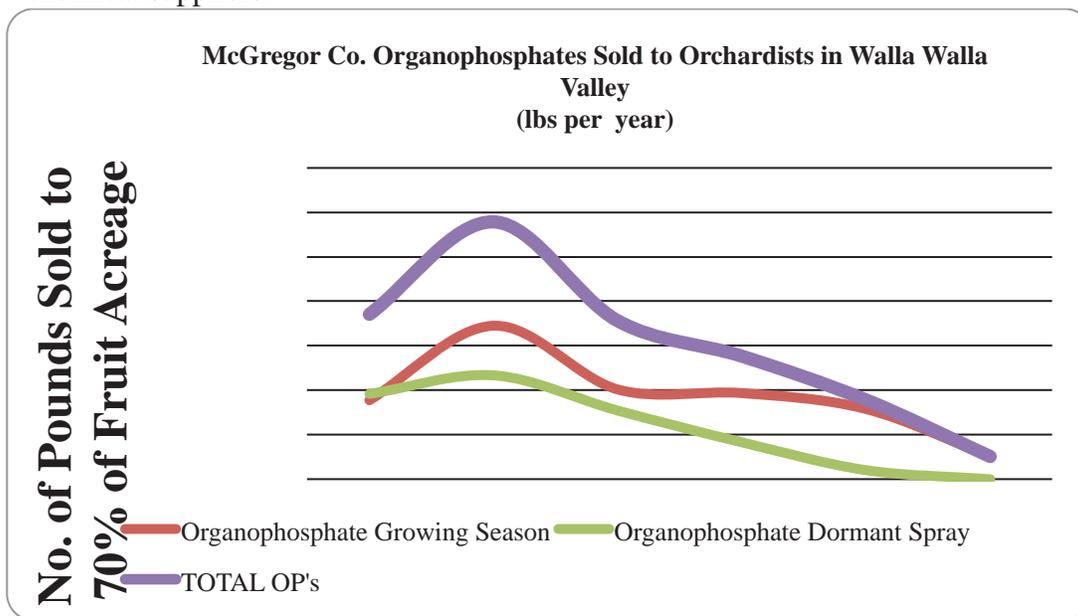


Figure 3. Organophosphate sales to orchardists by The McGregor Company to over 70% of acreage in Walla Walla Valley

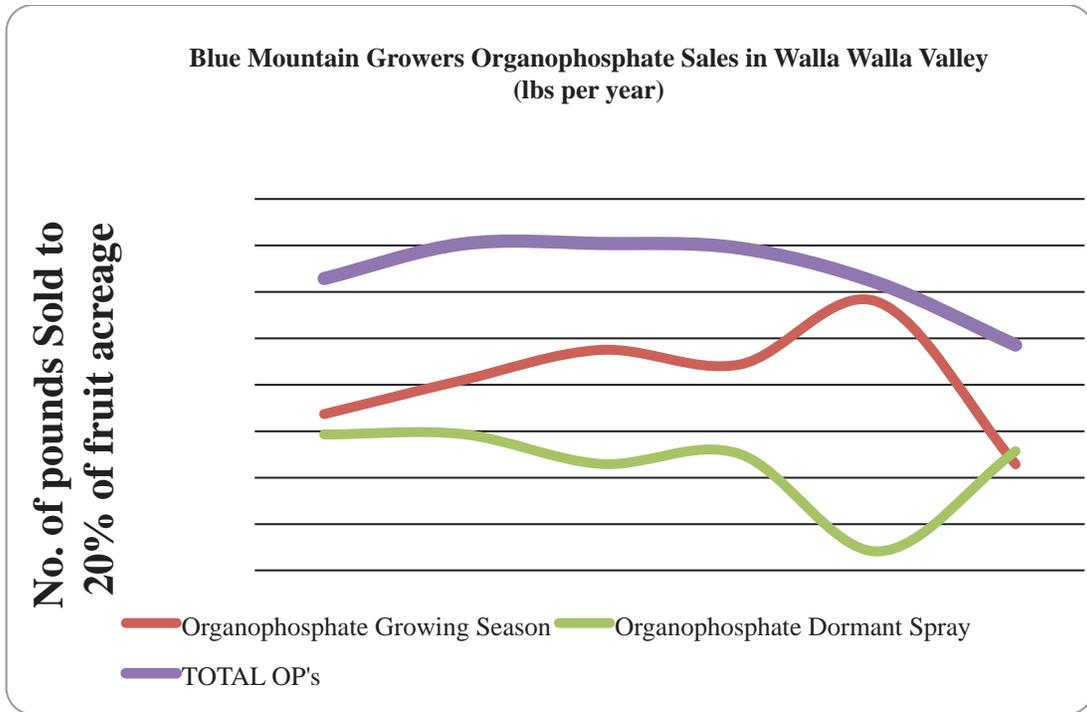


Figure 4. Organophosphate sales to orchardists by The Blue Mountain Growers to ca. 20% of acreage in Walla Walla Valley

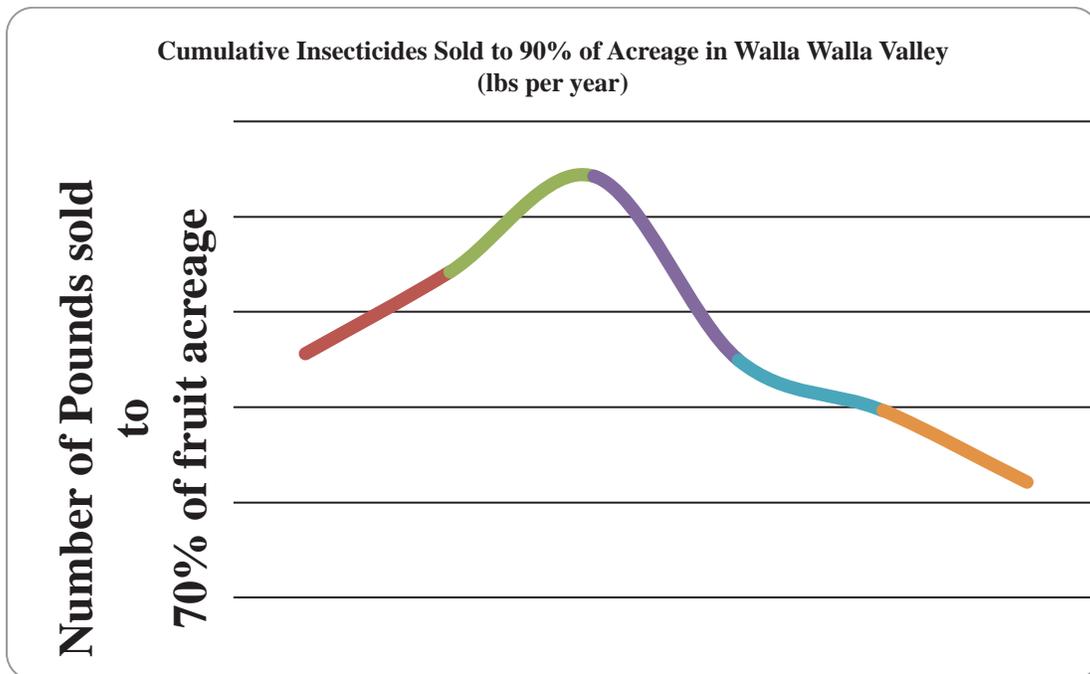


Figure 5. Cumulative Organophosphate sales to orchardists in Walla Walla Valley representing ca. 90% of the acreage in the Valley.

- Insecticide sales records were obtained from The McGregor Co. from 2005 till 2010. 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. This is more than an 1100% reduction in OP usage over the last 5 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. This is almost a 700% reduction in insecticide usage over the last 5 years.
- Insecticide sales records were also obtained from Blue Mountain Growers from 2005 to 2010. 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. This constitutes a 364% reduction in chemical usage by weight.
- Growers were educated on Feb 3, 2011 at the BMHS annual Research and Extension meeting in Milton-Freewater.
- 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.
- 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.

<b>Parameter rated by Growers</b>	<b>Rating 2008</b>	<b>Rating 2010</b>
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 <i>since</i> the installation of the Valley Weathernet.	4.1	4.0
How well the Valley Weathernet information has influenced the <i>frequency</i> of their chemical applications.	4.0	4.1
How well the Weathernet information has influenced the <i>timing</i> 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 home owner 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 and 4 in 2010. It has been concluded that the spread of this pest has been contained in the Pendleton area although eradication is still the key.

### **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.
- 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 home owners in Milton Freewater were educated at a public meeting. In 2010 another 56 home owners 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.
- Trees were also distributed to more than 380 home owners in exchange for removing their fruit trees.

## **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, home owners and environment in terms of chemical sprays and their frequencies.
- These data will be used to benchline against the 2011 granting cycle to measure further impact of the programs.

## **BENEFICIARIES**

- Growers (80+), fieldmen (5+), homeowners (>500) and the general public (3500+) 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 5 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.

## **LESSONS 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.
- Both an apple iPad2 and an Apple Mac desktop were needed as additional training tools to facilitate easier learning and outreach to growers both in the field and in the office.
- Regular updates must be forthcoming and models need to work consistently or growers become irritable with the models. These minor glitches need to be address in the future.
- Unexpected outcomes were the dramatic reduction in chemical usage and frequencies in the Valley over the last five years. Such a huge impact was not predicted but was certainly welcome.

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**S11 TITLE: Testing for Pesticide Residue in Treasure Valley Onions with Certified Onions, Inc. – Final Report (Approved 1/30/12)**

**CONTACT: Kay Riley, Certified Onions, Inc.**

**PHONE: 541-372-2600**

**EMAIL: [kayriley@snakeriverproduce.com](mailto:kayriley@snakeriverproduce.com)**

**PROJECT SUMMARY**

During 2007 and 2008, the Treasure Valley onion industry had been confronted with the application of off-label pesticides (pesticides not specifically approved for use on onions) by a small number of growers. Had unlawful levels of these pesticides been found in the area onions the entire crop could have been quarantined. This would have created an economic disaster in this region. Despite the seriousness of the situation, the grower community had failed to implement a plan to adequately police themselves and prevent continued misuse. Concerned over the marketing challenges faced when food safety issues are either present or perceived, several onion packers and shippers joined together to create a method whereby an independent third party could verify that onions shipped from the region were free of unapproved pesticides (off label).

Certified Onions Inc. (COI) was formed as a nonprofit corporation tasked with creating a process where onions are tested before they leave the valley. The program developed is as follows. The members of COI all committed that 100% of the onions they pack and ship will be tested. In order to accomplish this COI entered into an agreement with the Oregon Department of Agriculture to provide testing services. This included selecting the samples, processing the samples, lab testing and issuing a certificate of results. COI then creates a database of the results and monitors the member's compliance with the 100% commitment. A flowchart of this process is included as part of this report.

In addition to testing the project provided for advertising in various trade publications, the participation in Far East trade missions and participation in trade shows. The purpose of the advertising program was to make people aware of our testing program and which would in turn create additional market value and market share. We believe that showing the public we are proactive when it comes to food safety will improve the sales of Oregon onion. Copies of ads that were placed in trade publications are included in this report. The purpose of the Asia trip was to meet personally with buyers from Asia and inform them about our program. Formal presentations were made in Taiwan and made many personal visits in Japan and Hong Kong. As a result of this trip several loads of onions were shipped to Japan and we had buyers contact us from Taiwan.

**PROJECT APPROACH**

During 2009 20 out of 35 (63%) onion shippers joined COI and participated in the voluntary testing program. During the 2009 harvest time 661 fields were tested representing approximately 57% of the total acreage. During 2010 the contract with ODA was continued and membership increased to 22 members. The number of fields tested increased to 911 representing 72% of total acreage.

The board of directors for Certified Onions Inc began the formation of its plans in March 2009 and incorporated on June 24, 2009. Field testing began in July prior to harvest and continued until was completed in October. In addition, samples were taken from harvested product once put into storage.

The project's process is summarized as follows:

1. The first step in the process was to enter into a partnership with the Oregon Department of Agriculture to provide sampling and laboratory testing services. Together the chemicals to be tested and the sampling protocols were developed and the process described below was established.
2. Sample forms and test forms were created with input from both COI and ODA. The forms are sequentially numbered and issuance of the forms will be controlled by COI. Each test form was designed to handle from one to five samples. The forms included all pertinent information including time of last chemical application, field identification, map to field, onion color, and acreage. Properly completed forms were submitted to the Oregon Department of Agriculture for review, sampling and testing. Sampling was conducted by the ODA Inspection Office. They collected one sample from each field using an established Hyper-geometric table for random sampling. The field then was given a GPS specific identification number and a flag was placed in the field to identify which fields had been sampled. Samples were taken to ODA's local facility peeled and ground. The composite sample, consisting of up to 5 individual samples, was then put in a freezing container marked with the corresponding test number. The available test samples were packed and shipped over night to the lab in Portland.
3. Testing took from 2 to 5 work days upon receipt of the physical sample by the lab. If no detection was found during the composite test, all of the samples within the composite were considered certified. No certification was allowed on any fields within a failed composite test until retesting was completed and individual sample tests were shown to be negative. If at any time during the process there was a positive result, that information was passed on by the laboratory to the corresponding State's pesticide enforcement division. It was then up to the State to detain the fields in question until individually cleared and released.
4. All results were issued back to COI including the official ODA certificate. COI then created a database tracking all the samples, tests and certificates. Each member of COI was given copies of the official certificates for their tests and a summary of all sample and test numbers. Members were allowed to use certifications as individually deemed beneficial and relevant. COI was charging \$100 per sampling application and \$350 per test application. The grant monies reduced those charges by approximately half for the 2009 and 2010 harvest.

During 2009 and 2010, the work plan listed above exceeded our expectations when actually put into action. The local ODA office and the lab performed extremely well providing excellent service. Membership in COI was 57% of the population of onion packers and shippers which also exceeded expectation. The members obtained the sample and test forms from the office of Lonny Hytrek CPA, PC who acted as administrator for COI. Those forms were completed and delivered to Casey Printiss at the local ODA office. That office assigned qualified persons to go out and collect the samples. The samplers were taken to the field by a field man of the COI

member, and picked up on the other side of the field. On a few occasions this was not handled properly. The COI member responsible was charged for the extra time. One issue that arose during the sample collection phase was the proper definition of a field (each field required a separate sample form). Pesticide enforcement was contacted for help with this issue and a definition acceptable to all was agreed upon. Also during the process it was determined that each color of onion should be considered a different field. Very early on we discovered the amount of space on the sample form allotted for the field map was much too small and the forms were changed to accommodate this. Several members requested that microbial testing be added to the testing options and the forms were modified for this test. However, after some delays and discussions with the lab it was decided to wait until next year to provide a microbial test. Other than these minor issues the actual process worked better than we expected.

During the second year of testing a number of changes were made.

1. First; the testing was expanded to include an MRL (maximum residual level) test which substantially increased the number of chemicals tested. For this test the legal chemicals had to be below the MRL and the illegal chemicals must be zero.
2. Second; the GPS reading was taken when they entered the field and when they exited the field to prove proper sampling procedures.
3. Third; each sample was ground separately and each weighed before combined in the composite sample for testing. Also each sample was stored separately in case of a positive test results. This required the purchase of additional freezers for storage.
4. Fourth; each sampler was required to disinfect their boots and pant legs after exiting each field.
5. Fifth; a microbial test was added to the options and 67 microbial tests were completed. On the administrative side of the process no big changes were needed. The new tests were entered into the database and added to the final reports. The new tests were given a separate number sequence so they could be easily identified. Official ODA certificates were copied and sent to the members as soon as received from the ODA. The original certificates were filed and stored at the administrator's office.

Additionally, Certified Onions, Inc. conducted outreach to targeted markets and international buyers. Certified Onions, Inc., paid for all domestic buyer outreach but international outreach occurred in conjunction with official Oregon Department of Agriculture technical missions in Asia and the Far East as well as Mexico. In Asia, targeted markets and individual buyers in those markets included Japan, Taiwan and the Russian Far East as well as international retailers operating in those markets, including Japanese supermarket chain Jusco, British Tesco, French Carrefour and Costco and Wal-Mart. In Japan and Taiwan, COI met with government import officials regarding the program and introduced the certification that is being gained by COI producers. COI will organization representation to these markets to conduct outreach.

The Asia trip took place in April of 2010. Two members of the Board accompanied the ODA technical mission to Japan, Hong Kong and Taiwan. Many contacts were made at each location. The contacts in Japan eventually resulted in COI and ODA sending a test shipment of onions to an importer. This led to the sale of 10 containers of onions to Japanese buyers. We expect the sales of onions to Japan to continue and increase.

COI planned to conduct outreach to Mexican government officials and large retailers like Soriana and Wal-Mart in that market. However, the proposed outreach to Mexico was determined to be not cost effective based on the number of acres of onions now grown in that country. The budget for this part of the plan was moved to the marketing of onions to Japan.

### GOALS AND OUTCOMES ACHIEVED

The goals and outcomes of the project were outlined as follows:

*“...The grant will reduce the costs of the program and increase participation. COI was formed by 6 members. The goal during the first year of the program is for 50 percent of the valleys’ 35 shippers to join and have their total committed acreage tested. Participation data will be collected and measured by COI’s contracted management firm. We estimate that receiving the grant will both increase new membership sign up and bring tested acreage to nearly 60 percent making the majority of onion acreage tested during the first season...”*

During the first year of testing the number of members was 20 or 57% of the growers (we had anticipated 50%). During the second year of testing membership grew to 22 or 63% of the growers. We had anticipated testing 11,000 acres (50% of the total area acreage) and we tested 11,793 or 54% of the total area acreage. The following year we tested 15,923 acres or 72% of the total area acreage. We have fully achieved the expected measureable outcomes listed in our grant proposal. Other interesting statistics is the total estimated pounds of onions tested, 824,810,000 for 2009 and 1,114,610,000 for 2010.

	Expected Outcome	2009	2010
Members	18	20	22
Off label Certificates issued		180	36
MRL Certificates issued			190
Microbial tests			67
Samples completed		629	828
Total acres tested	11,000	11,793	15,923
Percent increase			35%
Average field size		18.9	19.2
Yellow		10,622	14,274
White		298	362
Red		848	1,287
Shallots		25	
Estimated total area acres		22,000	22,000
Percent of total tested	50%	54%	72%
Estimated pounds tested @ 700 cwt yield		824,810,000	1,114,610,000

## **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**

Since this was a pilot project many lessons were learned regarding the sampling protocol, testing, data recording etc. however the original plan proved to be good and there were no major changes to the plan. The only unexpected outcome was that we exceeded all expectations for participation in this program. The concept, cost and purpose of this program was very well received.

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**S12 TITLE: Retail Distribution and Sales Promotion of Specialty Crop Products in Southern China and Hong Kong with China Network, LLC – *Final Report***

**CONTACT NAME: Gary Roth and Jim Cramer**

**PHONE: 503-872-6600**

**EMAIL: [groth@oda.state.or.us](mailto:groth@oda.state.or.us); [jcramer@oda.state.or.us](mailto:jcramer@oda.state.or.us)**

**PROJECT SUMMARY**

The purpose of the project was to assist small to medium size Oregon specialty crop producers access the fast growing, 200 million consumer region of Southern China and Hong Kong.

These firms are often constrained from market entry because they lack meaningful ongoing market development presence to navigate the complex wholesale distribution network necessary to introduce their products. If wholesale a wholesale distributor has been identified and developed there is usually little or no retail promotional support available to “pull” the newly introduced product through the marketplace. The objective of this project is to overcome the lack of ongoing market development presence through consistent full-time marketplace representation capacity to develop meaningful wholesale distribution channels while supporting new-to-market specialty crop products with in-store promotion and merchandising support at targeted retailers in Southern China and Hong Kong.

**PROJECT APPROACH**

Retailers were engaged and met with to gauge their interest in numerous specialty crops. This assisted China Network to create product appropriate promotional materials and in-store displays. As a result, a pallet of wine was brought in from Oregon to China and the outcome with positive response. China Network also exhibited at the Wine and Gourmet Asia 2010 show to promote Oregon wines. As a result multiple pallets of Oregon wine were sold in Hong Kong and will continue to do so as a result of this project. Blueberry toppings and roasted hazelnuts were also brought in with favorable interest.

Additional meetings were held with purchasing directors from the retail, foodservice and ingredient sectors to secure their assistance in creating more export sales for Oregon specialty crop companies.

Each partner to the project was critical to the support of China Network in their efforts to introduce Oregon specialty crop products. The Oregon Department of Agriculture (ODA) provided ongoing market strategy consultation and the participating companies provided in a timely manner for testing and sampling.

**GOALS AND OUTCOMES ACHEIVED**

We targeted Wal-Mart, Trustmart, Vanguard Supermarket, and Ole and gave them an overview of available Oregon specialty crop products. In conversations with buyers at these retailers, strong interest was expressed on wine, berries, hazelnuts, specialty potatoes and onions, as well as other health and wellness oriented retail products. Promotional banners and displays were created for in-store use. We also created artwork and promotional gift boxes to be used at the displays that will be sold at the displays in the stores.

China Network have set up promotions and product demonstrations at 4 different supermarket chains in Shenzhen. These stores were Wal-Mart, Trust Mart, Ole, and Vanguard.

China Network was one of the first companies to do a promotion of this size in China and were pleased initially with the response. Positive feedback was received from different companies in China towards Oregon products. The most positive result was the interest in a test shipment of wine that resulted in subsequent orders and a business partnership with a foodservice outlet.

China Network developed a working partnership with the Purchasing Director of Ole's Supermarket Stores to review any samples submitted to them in regards to selling the product on store shelves.

China Network exhibited at the Wine and Gourmet Asia 2010 show to promote Oregon wines. Key members of the Hong Kong wine trade were introduced to Oregon wine to help educate and increase the awareness of Oregon wines in the China market. As a result, multiple pallets of Oregon grown wine have been sold in Hong Kong and will continue to do so as a result of this project.

Despite these efforts, as the project moved forward, the retail market in China proved to be more competitive than anticipated for Oregon specialty crop products. After several attempts to find product matches for the retail market in China, China Network along with the ODA determined that much more development work is needed on the supplier side in Oregon before these types of direct introductions and promotions will be successful.

The ODA is aware of at least 6 companies that worked with China Network, which included: Evergreen Agricultural Products, Dundee Fruit Company, Oregon Fruit, Oregon Growers and Shippers, Meduri Farms, and Maysara Winery.

The expected measurable outcome of "\$50,000 in direct sales of specialty crop products to wholesaler/distributors in the market region, and total new-to-market export sales of specialty crop and/or processed products of \$500,000 for a twelve-month period" was not fulfilled. However, valuable information was received by the specialty crop stakeholders and detailed in the Lessons Learned section below.

## **BENEFICIARIES**

The project's 6 participants representing growers, packers, canned fruit, fresh fruit and wine are the primary beneficiaries of the. The beneficiaries were able to receive valuable, constructive feedback market appropriateness, quality and price point acceptance of their respective products.

## **LESSONS LEARNED**

The retail market in China has proved more competitive than anticipated for Oregon specialty crop products. After several attempts to find product matches for the retail market in China, China Network along with ODA determined that much more development work is needed on the supplier side in Oregon before these types of direct promotions will be successful. It was agreed that this project should not move forward and export efforts should be focused in other areas.

China Network recommends future work target tradeshow for Oregon suppliers to continue to develop distributor relationships in the retail sector in China. Oregon should partner with other states to improve product range offerings. Oregon suppliers may have more success targeting hospitality and restaurant industry due to the fact that the labeling and packaging requirements are less strict.

Although there was initial interest in Oregon specialty crop products, China Network found it very challenging to compete with multi-national companies and local products in targeted retail environments. Oregon specialty crop suppliers also had difficulty providing a large enough range of products for retailer stocking needs. For example, Oregon could provide dried blueberries and cranberries, but were unable to source apricots, prunes, raisins and figs, to round out a full product line. Oregon suppliers also had trouble meeting the retailer packaging and labeling requirements and specifications.

As a result of these market facts and forces, the ODA and China Network jointly determined to suspend the project at the midpoint in terms of time and money. No other funding was extended to China Network.

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**S13 TITLE: Hood River Valley Integrated Codling Moth Program with Columbia Gorge Fruit Growers – Final Report (Approved 1/30/12)**

**CONTACT: Jean Godfrey, Columbia Gorge Fruit Growers**

**PHONE: 541-387-4769**

**EMAIL: [cgfg@hrecn.net](mailto:cgfg@hrecn.net)**

**PROJECT SUMMARY**

The Mid-Columbia area of northern Oregon and southern Washington has approximately 281 pear growers with an estimated 12,659 acres in pear production. About 1/3<sup>rd</sup> of the winter pears produced in the United States are produced there. Many pear growers also produce apples. For these fruit growers, codling moth is a key pest and its management has significant economic and environmental consequences.

Codling moth is a direct fruit pest with damage resulting in unmarketable fruit and an economic loss to the grower. Codling moth management programs have employed a traditional cover-spray approach rather than integrated pest management (IPM) practices. Organophosphate (OP) insecticides such as azinphosmethyl (AZM) and phosmet have long been the mainstay of codling moth control programs.

Use of AZM in all crops will be prohibited after 2012 due to concerns about risks to farm workers, pesticide applicators, and aquatic ecosystems. Furthermore, there have been concerns about the toxicity of all OP insecticides to aquatic organisms including steelhead trout, which were listed in 1998 under the Endangered Species Act as threatened in the Hood River watershed. Continued use of OPs in Mid-Columbia orchards is under scrutiny by the Oregon Department of Environmental Quality because of detections which exceeded water quality standards in area streams. Mid-Columbia pear and apple growers need proven alternative management programs for codling moth that have reduced human and environmental risk.

Many of these growers have used codling moth management programs which include pheromone mating disruption and newer, “softer” pesticides, but the mating disruption has often been applied at lower than recommended rates in a piecemeal manner, and consequently, had varying levels of success. Although these approaches have benefits such as reduced environmental and human risk, they require intensive monitoring, and are often more expensive than traditional programs. In addition, growers often lack the knowledge for optimal integration of the new insecticides available as supplemental treatments to mating disruption into IPM programs. Furthermore, mating disruption-based codling moth management programs are most effective when employed in large, contiguous blocks, referred to as area wide programs. Area wide implementation has not been adopted due to complex orchard ownership/management patterns with many growers in a relatively small geographic area and general lack of coordination among them.

Starting in 2007, in a project conducted with 11 fruit growers on 614 acres in Dee Flat, we demonstrated significant benefits of integrated area wide codling moth management for reducing codling moth populations, reducing codling moth fruit damage, and reducing the use of OP insecticides. In 2009, we expanded that project adding 13 growers and an estimated 652 acres in

Odell. Those efforts had very good short-term success, but long-term grower adoption of alternative codling moth management was tenuous, primarily because of the high cost of pheromone dispensers and perceived higher level of risk of fruit damage.

Continued grower participation relied on subsidizing the cost of pheromone mating disruption, the foundation of the alternative codling moth management program. Furthermore, the benefits of integrated codling moth management may not be fully realized for several years until codling moth populations are sufficiently reduced and the need for supplemental sprays is significantly reduced. Additional benefits are often realized when the need for chemical control of pear psylla - an important secondary pest of pear - is reduced when disruptive, broad-spectrum insecticides are no longer used for codling moth control and biological control of pear psylla is stabilized.

The Dee Flat and Odell project areas were very well suited to integrated area wide codling moth management. ODA funding was critical to making our initial accomplishments more durable by extending support to project participants for the 2010 growing season, providing them with a longer-term experience and a greater likelihood that the long-term benefits of the integrated management programs would be achieved.

## **PROJECT APPROACH**

Participating growers and their pest control advisors (PCAs) were provided with first-hand experience implementing integrated codling moth management based on the IPM practices of:

- pest monitoring
- threshold-based treatment decisions
- determining pest phenology
- least disruptive treatment options
- area wide implementation

The project consisted of several elements that were implemented during the 2010 growing season including:

1) Orchard monitoring for codling moth - a comprehensive, systematic codling moth monitoring program was conducted by CGFG and OSU consisting of:

- pheromone trapping using one trap per three to five acres of pear and apple orchard, with traps checked weekly
- fruit sampling between the first and second generation of codling moth
- fruit bin checking for damage at harvest

2) Information sharing - the information generated from the codling moth monitoring program was available to participating growers and their PCAs through a password protected website maintained by CGFG. Additional pertinent information was provided in periodic reports emailed to project participants and their PCAs, which included:

- seasonal trends and treatment thresholds for codling moth
- suggestions on best treatment options for codling moth and secondary pests
- codling moth phenology information from local Agrimet

(<http://www.usbr.gov/pn/agrimet/>) and IFPnet (<http://ifpnet.com>) weather stations

Periodic project meetings with project participants, their PCAs, CGFG staff, and OSU staff provided additional opportunities to review monitoring results, pest phenology and population

trends, and treatment options. End-of-season summaries were presented to participating growers and their PCAs.

3) Area wide integrated codling moth control programs – during the 2010 growing season, the codling moth monitoring program and additional supporting information provided to participating growers and their PCAs provided the basis for rigorous management programs integrating:

- pheromone mating disruption applied at the full label rate on all pear and apple acreage in the project areas
- threshold-based treatment decisions
- pest phenology
- least disruptive treatment options
- coordinated sanitation program for non-commercial hosts of codling moth

The pheromone mating disruption was supplemented with the application of insecticides considered to have good efficacy on codling moth. Growers were encouraged to avoid using AZM and phosmet, but the choice of registered products was ultimately their own.

4) Evaluation of fruit damage at harvest – damage from codling moth and secondary pests was quantified for each grower in a subset of their orchard blocks using a standard protocol of examining 50 fruit in 10 bins (500 fruit total) per block.

5) Assessment of the effectiveness of integrated codling moth management - this was measured by the effects on the codling moth populations and codling moth damage to fruit. Procedures for measuring both were integrated into the project methods.

Grant funds were used to provide cost-sharing of pheromone dispensers as a financial incentive for grower participation and to pay wages and mileage for the field technician who checked the CM traps weekly and conducted the harvest-time fruit evaluations.

## **GOALS AND OUTCOMES ACHIEVED**

The goal of this project was to increase the number of pear and apple growers in the Dee and Odell project areas implementing integrated codling moth management programs by 75 percent. For the purposes of this project, the following practices were considered to comprise integrated codling moth management:

- application of pheromone mating disruption at full label rate on all pear and apple acreage
- supplemental sprays using alternatives to AZM and phosmet
- treatment decisions based on codling moth monitoring using one trap per three to five acres

Progress towards these outcomes was determined through conducting a survey of participants at the end of the 2010 growing season. We did not meet the project goal, but not because participating growers did not implement integrated codling moth management programs. Rather, it was because all of the growers followed the practices in both the 2009 season, which was used as a benchmark, and the 2010 season. Using these practices, codling moth populations were maintained at very low levels and fruit damage from codling moth was maintained below critical levels without the use of OP insecticides.

We were successful in providing project participants with a longer-term experience of the integrated management approach. During the 2011 season, an estimated 96% of the growers

who participated in the project in 2010 continued implementing the area wide pheromone mating disruption *without* cost-share funds, and many of these growers were able to substantially reduce total pesticide use in 2011. This is a long-term benefit of selective management of codling moth. Grant funds were critical to making our initial accomplishments more durable by providing project support during the 2010 season.

## **BENEFICIARIES**

This project directly involved 24 growers (about 10% of all pear growers) in the Hood River Valley and their PCAs. The potential direct economic impact of this project to participants is from reduced costs of pest management programs. We have not evaluated this impact yet, but anticipate using data collected during this project as a baseline for doing that. Additional benefits from the reduction in OP and other insecticide use include reduced exposure for workers and their families as well as reduced environmental loading.

In addition to the experience gained by the primary beneficiaries, all Mid-Columbia area pear and apple growers had opportunities to learn about the project and integrated codling moth management through events open to the entire industry as well as through word-of-mouth among growers. This project provided a model for codling moth management without the use of OP insecticides, especially AZM, which is scheduled to be phased out in 2012. This model is applicable to the entire pear and apple industries in the Mid-Columbia region (approximately 300 growers on 15,000 acres contributing \$80 million annually to the local economy). Adoption of this approach would ensure successful management of codling moth without OP insecticides beyond the 2012 AZM phase-out.

## **LESSONS LEARNED**

- Providing a relatively low level of cost-share (about \$30 per acre) to growers for pheromone mating disruption was adequate to have 100% participation in the project.
- The project framework provided a high level of coordination and increased focus on all elements of integrated codling moth management among project participants. The project framework also bridged communication gaps across competing groups of PCAs. Based on informal feedback, both participating growers and their PCAs recognized these aspects as important to the success of the project.
- Systematic monitoring for codling moth is an important aspect of integrated codling moth management, especially during the initial season of implementation. Codling moth monitoring is normally conducted by PCAs as part of the field service they offer to growers, but some PCAs are reluctant to conduct the monitoring at the recommended intensified level due to increased costs and personnel management. This is a potential impediment to successful implementation of integrated codling moth management without external funding.
- We have been encouraged that during the 2011 season an estimated 96% of the growers who participated in the project in 2010 have continued implementing the area wide pheromone mating disruption without cost-share funds and many were able to substantially reduce total pesticide use in 2011.

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**S14 TITLE: Streamlining Third-Party Certification with Diamond Fruit Growers/Oneonta Starr Ranch – *Final Report (Approved 1/27/11)***

**Contact: David Garcia, Diamond Fruit Growers**

**Phone: 541-354-5300**

**Email: [daveg@diamondfruit.com](mailto:daveg@diamondfruit.com)**

**PROJECT SUMMARY**

The project intended to address food safety concerns by mitigating risk through third party certification of producers and packers. Due to a change in leadership in the company, this project no longer became a priority and the funding was declined.

No funding has been expended to date on this project. The ODA submitted an amendment to this project, which was titled “Oregon Blueberry Promotion in India” (see the report at the end of this document) for \$30,000 of the \$90,000 allocated to the Diamond Fruit Grower’s project. The ODA plans to submit subsequent amendments to utilize these funds in other areas.

**PROJECT APPROACH**

No work was completed on this project.

**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.

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**S15 TITLE: Increasing Efficiency and Market Access with FoodHub in cooperation with Ecotrust – Final Report (Approved 1/30/12)**

**Contact: Deborah Kane, Ecotrust**

**Phone: 503-235-5282**

**Email: [dkane@ecotrust.org](mailto:dkane@ecotrust.org)**

### **PROJECT SUMMARY**

*Increasing Efficiency and Market Access with FoodHub* is a bi-state project serving Oregon and Washington specialty crop producers. 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. However, finding appropriate supply chain partners is much like looking for the proverbial needle in the haystack. Wholesale food buyers suspect specialty crop producers are out there, they just don't know how to find them.

FoodHub was created to address this issue, making it easy and efficient for regional food buyers and sellers to connect and conduct business. FoodHub has the following clearly defined objectives: 1) Provide specialty crop producers a simple way to provide general information about their business and market themselves, their stories, and their products to specialty crop buyers throughout the region and beyond; and 2) Diversify and create new market opportunities for specialty crop producers by increasing the number and types of food buyers purchasing their products.

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 the burgeoning interest in regionally produced food. However a product description and an SKU code are often the only information buyers have to inform their purchasing decisions. Indeed, warehouses are full of high-volume, low-cost products sourced globally from anonymous producers. Being able to share the rich stories behind our food—the names of the farmer's kids, how they knew when to harvest the cherries for maximum sweetness, which onion producer always takes the blue ribbon at the county fair—provides a crucial competitive advantage. FoodHub arrives just in time.

Previous SCBGP funds were used to solicit feedback from specialty crop producers about key site requirements and then build the tool itself. This project builds on that early investment in this 2009 specialty crop block grant funding was used to launch the tool and promote it to specialty crop producers as a resource for marketing themselves and their products to specialty crop buyers throughout the region.

### **PROJECT APPROACH**

The two key components of our work plan were: 1) outreach and marketing; and 2) technical development. Activities performed in each of these areas between October 1, 2009 and September 30, 2010 are described below:

*Outreach and marketing* (for additional detail, please refer to the attached FoodHub Marketing

and Promotion Master List):

- **Conferences and Presentations:** From Bellingham to Hermiston, Eugene to Olympia, Ashland to Spokane, the FoodHub team was present at over 30 events, making presentations and attending agricultural conferences to promote FoodHub. Deborah Kane presented FoodHub at an invite only national nutrition summit in Washington DC and hosted FoodHub information sessions on Capitol Hill (35+ Congressional staffers attended) and at USDA. The USDA briefing was well received and included representatives from the “food hubs” team at USDA. We also hosted USDA Deputy Undersecretary Ann Wright for a February 2010 FoodHub ribbon cutting ceremony attended by over 120 Northwest food and agricultural colleagues.
- **Print, social, and electronic media:** We developed an electronic newsletter (now sent to over 4,000 subscribers), a Facebook page (with over 1,500 followers) a Twitter account, and a FoodHub blog. To combat an initial perception that FoodHub was designed only for smaller producers, we designed a three part campaign to reinforce the notion that FoodHub is for specialty crop buyers and sellers of all sizes, regardless of distribution method employed. The campaign included mailing 6,000+ postcards to area food buyers and specialty crop producers with corn images that read “By the ear or by the acre” and strawberry images that read “By the flat or by the field.”
- **FoodHub Ambassadors:** To extend our reach, we recruited and trained eight FoodHub Ambassadors, including Oregon Farm Bureau, Gorge Grown Food Network, Columbia Blue Mountain RC&D, Friends of French Prairie, Willamette Farm & Food Coalition, Northwest Cooperative Development Center, Sound Food and Edible Seattle. These groups are now able to represent FoodHub in their area, recruiting specialty crop food buyers and sellers to use FoodHub as a key tool.
- **Earned Media:** FoodHub garnered 24 earned media mentions (print, radio, and blog) over the course of the grant period. *The Oregonian*, *Fast Company*, *Capital Press*, *OPB*, and *Sustainable Business Oregon* all ran prominent FoodHub stories.
- **Growing FoodHub’s outreach and marketing staff capacity:** We hired Amanda Osborne as the FoodHub Sales & Marketing Director. Amanda is a seasoned marketing professional with expertise in social media, partnership development, and campaign development and execution. Early in 2011, we also brought two full-time FoodHub Membership Coordinators on board to provide member customer service and implement additional outreach and recruitment activities.

### *Technical Development*

It is difficult to overstate the magnitude and scope of the technical development, modifications, and refinement that took place over the specialty crop grant period thanks to both specialty crop funds and substantial matching support. The tool evolved from a beta format launched November 2009 to the feature-rich FoodHub version 2.0, which debuted September 2010. This evolution was guided by preliminary testing with and feedback from specialty crop buyers and sellers. We obtained feedback via the site’s instantly accessible “Feedback” button, customer service support phone calls from FoodHub members to FoodHub personnel, focus groups, member surveys and one-on-one interviews.

Feature development rolled out on an ongoing basis over the grant period included:

- Expanding FoodHub’s taxonomy as specialty crop producers sent in information about

particular varieties of fruits or vegetables that needed to be added to FoodHub's already extensive taxonomy.

- Improving the product management interface so that rather than adding products one at a time, sellers could add fruits and vegetables, with associated attributes, en masse.
- Allowing producers to list which farmers markets they attend so as to encourage wholesale pick up at farmers markets.
- Listing Idaho markets and distributors to accommodate producers in Eastern Washington and Oregon.
- Allowing users to act as both buyers and sellers so that those who, for example, buy raw ingredients but sell finished products can maximize their use of FoodHub.
- Modifying the marketplace section to accommodate posts that were not product oriented. For example, we created a category for transport and logistics information to aid in creating distribution and logistics efficiencies.
- Changing the way newcomers interact with the site.
- Adding personalized analytics so that members could see how many potential customers had viewed their profile page.
- Adding a blog to communicate more effectively with users and interested parties alike.
- Creating video content to encourage greater use and adoption.

Feature development rolled out as part of the launch of FoodHub version 2.0 included:

- Doubling the site's taxonomy to over 2,000 products.
- Expanding the range of customized searches, from general product descriptions to highly specific product requests.
- Suggesting potential matches to members upon login.
- Creating an improved, more approachable homepage interface and navigation tools that do a better job of orienting new members to the site.
- Adding a new welcome video to provide new members or returning users with an overview of the system's features and quick coaching on how to get started and make the most of FoodHub's matchmaking functions.

Results, accomplishments, conclusions and recommendations are shared throughout this report. Perhaps most illustrative as it relates to FoodHub's accomplishments, are the connection stories and real life impacts facilitated by FoodHub. Below we share just a few.

### **Wilderness Poets ↔ Honor Earth Farms**

John Bannerman of Wilderness Poets was able to spread the good word about his products with the Marketplace and find a new source for hazelnuts for his line of artisan nut butters: Linda Perrine of Honor Earth Farms, a 35 acre organic hazelnut farm in Eugene, Oregon.

### **Wobbly Cart Farm ↔ Sassafras Catering**

After placing a "Wanted" post in the FoodHub Marketplace, Jennifer Brooks of Sassafras Catering 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.

### **Columbia County Natural ↔ Val's Veggies**

“FoodHub has been a great way for us to find local sources,” says Susan Baker, co-founder of Columbia County Natural, a non-profit food buying club started in May of 2010 in Scappoose, Oregon. Susan Baker and Monique Tindall started the buying club to provide more options for local residents, who have minimal access to regionally grown fresh fruits and vegetables. Columbia County Natural has begun relationships with producers including Pd Farms for apples and alliums and Val’s Veggies for crates of winter squash and pumpkins. “We want to keep these smaller farmers in business, and the only way to do that is if we’re all buying from them,” Baker asserts.

### **Gervais School District ↔ Tipping Tree Farm**

Clare Columbus, Nutrition Services Director for the Gervais School District near Salem, Oregon, found out that her regular farmer would not be able to supply the lettuce she needed for the Harvest of the Month she had planned. Instead of panicking, Columbus used FoodHub to send a quick message to several farms nearby that listed lettuce among their products and also posted her request to the FoodHub Marketplace section. By the end of that day, she had found her lettuce! Ivan Maluski from Tipping Tree Farm in Colton (only 6 miles down the road from Gervais schools) got in touch and delivered the lettuce himself the next week.

### **The Pretty Pickle Company ↔ Gales Meadow Farm**

Margaret Shell is the talent behind The Pretty Pickle Company of Salem, Oregon. Originally, Margaret started The Pretty Pickle Company as a way to use the excess vegetables from her family’s abundant garden. Today, she purchases most of her vegetables from Oregon family farms. This year, she discovered Rene and Anne Berblinger of Gales Meadow Farm, who had an exceptional garlic harvest. Margaret and Anne are arranging to have Margaret pickle some of Gales Meadow’s garlic to sell at their respective farmers’ market stands.

### **Grand Central Baking ↔ Big B Farms**

With bakeries in both Seattle and Portland, Grand Central Baking is committed to working with regional producers across the Northwest. The bakery has nurtured relationships with regional vendors for years, but there are always holes to fill. Last spring, Grand Central Baking used the FoodHub Marketplace to find ingredients for its legendary pies. The posting read, “We are in search of local rhubarb for pie season. We prefer once a week deliveries to our North Portland Bakery. We need 250–350 pounds per week while in season (April–July).” FoodHub member Big B Farms, who had never worked with Grand Central Baking before, responded to the post and struck a deal. “It was like magic,” said Grand Central Bakery’s Laura Ohm.

### **Portland Public Schools ↔ Cal Farms**

Every month during the school year, Portland Public Schools (PPS) features one regionally grown or produced item on their menu so that students can learn more about and taste regional agriculture. At 20,000 meals a day, the PPS district is one of the largest in the state. The district is often challenged to find producers who can meet its volume needs. This spring, PPS used FoodHub’s Marketplace section to successfully address this challenge. Their posting read, “PPS needs 200 pounds of radishes, delivered in 2 pound packages.” Three farms responded using

FoodHub, and within days, Cal Farms had a new customer and the beginnings of a long-term relationship.

Project partners were both innumerable and critical to FoodHub success in its first year. The following are a few examples of partnerships that helped propel FoodHub forward during this grant period.

- SYSCO Food Services underwrote half off memberships for the first 100 farmers who signed up via SYSCO.
- Oregon State University’s Small Farms training program incorporated FoodHub into its core curriculum.
- Food Services of America (FSA) underwrote half off memberships for all Oregon restaurants.
- The Oregon Farm Bureau promoted FoodHub to its 3,000+ farm members and offered a special Oregon Farm Bureau discounted membership to encourage participation.
- New Seasons Market regional produce purchasing coordinators actively assisted in the creation of taxonomy and recruited specialty crop producers to participate in FoodHub.
- Organic Valley underwrote memberships for school food service directors in Oregon and Washington so as to increase market access for specialty crop producers.

**GOALS AND OUTCOMES ACHIEVED**

The activities summarized above in the “Project Approach” section constitute the major activities completed in order to achieve the performance goals and measurable outcomes for this project. To ascertain whether we had accomplished specific measurable outcomes, we conducted a FoodHub member survey, held three focus groups, and conducted 16 one on one interviews. Specific measurable outcomes are summarized below.

<b>Outcome 1: Provide a way for specialty crop producers to provide general information about their business and market themselves, their stories, and their products to specialty crop buyers throughout the region and beyond</b>			
	Baseline	Goal	Results as of Sept. 30, 2010
Create profile page within FoodHub for marketing and promotion purposes	No such resource existed prior to grant	Create profile page	Achieved
Specialty crop producer recruitment in OR/WA	0	700	260
Specialty crop buyer recruitment in OR/WA	0	750	338
Satisfaction with tool	No baseline	85% of those surveyed satisfied	64% willing to recommend FoodHub to a friend <sup>1</sup>

<sup>1</sup> Note that FoodHub staff changed the satisfaction metric. Rather than asking whether members were “satisfied” with FoodHub, we plan to track on an annual basis members’ willingness to recommend FoodHub as a more accurate representation of satisfaction overall.

<b>Outcome 2: Create new market opportunities for specialty crop producers by increasing the number and types of food buyers purchasing their products</b>			
Producers indicating increased #s and/or types of buyers with whom doing business	No baseline	35%	50%

## **BENEFICIARIES**

FoodHub benefited Oregon and Washington specialty crops producers and food buyers of all kinds. In addition, with our long experience as leaders in the farm to school movement and the enormous potential for the school food market to strengthen rural economies, we have used project matching funds to target school food service directors as a key audience for our promotion of FoodHub. As of fall 2010, 50 K-12 districts, 13 individual K-12 schools, and 11 pre-K schools and childcare centers in Oregon and Washington had become FoodHub members. Approximately one fifth of all the school districts in Oregon had registered as FoodHub members. Overall, FoodHub is allowing specialty crop producers to reach more than 800 schools/facilities serving more than 452,000 children.

School members include urban districts such as Portland Public Schools, Seattle Public Schools, and Eugene 4J, rural districts such as Bend LaPine Schools, Gervais School District, and Wahluke School Districts, and pre-K and childcare centers such as 14 Oregon Child Development Coalition centers. We are working closely with all member nutrition service directors to train them how to use FoodHub to streamline regional food procurement, including specific trainings to increase the incorporation of fruits and vegetables into cafeteria menus, build their FoodHub profiles, and find specific foods and farms nearby. In addition, we are offering them any assistance needed to help develop and expand their district’s farm to school programming, including answers to questions about seasonality, competitive bid pricing, and negotiating with farmers.

Quantitative data was gathered through member surveys in which we learned the following about beneficiary impacts:

- 50% of sellers reported new connections made via FoodHub and 20% reported selling to new types of buyers
- 20% of sellers report having made at least one sale to a FoodHub connection, with dollar value of sales ranging from \$250 - \$10,000.
- 85% of non school buyers became aware of suppliers that hadn’t known prior to FoodHub
- 70% of school food buyers had become aware of new suppliers because of FoodHub, with more than half of these attributing two to four new relationships to their participation in the FoodHub online community.
- Schools that said they purchased products through FoodHub connections purchased mainly fruits (83%) and vegetables (50%).

## **LESSONED LEARNED**

As with any new venture, FoodHub’s first year in the marketplace was one of tremendous learning. Daily feedback loops with members, along with formal evaluation methodologies

discussed above, resulted in the insights shared below.

**Right tool, right time:** The feedback on FoodHub has been overwhelmingly positive, with specialty crop producers and buyers confirming that FoodHub provides a vital service. Survey results indicate that the feature set in FoodHub is relevant to specialty crop producers' needs, with more than 50% of members indicating high levels of interest in the directory listings, search, message center, and marketplace features. Additionally, specialty crop buyers and producers offered statements such as these when responding to member surveys:

“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.”

Beaverton Public Schools, School food buyer

“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’s Table, Restaurateur

“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.”

Eat Oregon First, Distributor

“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.”

Know They Food Buying Club

“There are just so many different vendors there; it’s really great. I can make a list of all the producers who have, for example, figs, and then work my way through the list to find the right match for our needs. It’s great.”

Sassafras Catering

“It’s a great way for making introductions. As a marketing tool it’s huge.”

Big B Farms

“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.”

Cal Farms

“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.”

Springbank Farm

**Density is key to success:** As a networking platform, FoodHub’s ability to catalyze or facilitate connections for any member rests on the density and active engagement of membership across the region. FoodHub membership grew quickly in Oregon, relative to Washington, with

memberships congregated along the I5 corridor. Where there was a density of memberships and member types (e.g. lots of specialty crop producers with varied products and multiple types of buyers), benefits and connections accrued quickly. Yet FoodHub's membership benefits were not felt equally across the system; in more rural areas where membership was dispersed, benefits were unpredictable.

**Price is a barrier:** FoodHub's sustainability plan included a \$100 per annum membership fee. Through research with members on both the buyer and seller sides of the membership equation, the team discovered that the \$100 fee was a barrier to entry for many potential members. Independent producers and restaurateurs/caterers, plus public schools and daycare centers, all operate on such slim margins/food-budgets that the membership fee simply couldn't be absorbed.

Moreover, Chris Anderson, author of "*Free! Why \$0.00 Is the Future of Business*" (Wired Magazine, 2/25/08) and *FREE*, Hyperion Publishing, 2009 explains that "From a consumer's perspective, there is a huge difference between cheap and free. Give a product away and it can go viral. Charge a single cent for it and you're in an entirely different business, one of clawing and scratching for every customer."

**Ease of use needs improvement:** Through member surveys and focus groups, we discovered that many of FoodHub's features (such as hot sheets) were not being fully utilized across the membership and that some members struggled to perform basic functions such as searching for specific producers. Early development efforts prioritized database structure and taxonomy, perhaps to the detriment of usability.

**Hands on assistance and matchmaking:** In addition to improving the site's usability, FoodHub members also suggested that we leverage FoodHub's relational database to suggest potential partnerships and new connections, playing a more active role in helping them connect with potential partners.

**Key players were being left out:** When FoodHub launched in spring 2010, the site was intended primarily for food buyers and food sellers as a "b to b" tool. Within months, non profits, commodity commissions, trade association, industry supplier groups, etc. all indicated an interest in joining FoodHub and it became clear that we had failed to include key players that could support specialty crop producers in their efforts to establish new markets.

In response to the lessons learned above, we have made several significant changes. Notably, on February 1, 2011 we eliminated the \$100 membership fee and created a new membership category to accommodate "Associate" members. Usability improvements and more active match making efforts are also in development.

## **Conclusion**

In summary, FoodHub is quickly becoming the region's go to resource for buying and selling regionally produced food. Specialty crop producers of all kinds stand to benefit from participating in FoodHub, and we look forward to continuing to support the success of specialty crop producers in Oregon and Washington.

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**S16 TITLE: Improving Food Safety, Traceability and Productivity of Northwest Specialty Crops Food Processors Using Radio Frequency Identification (RFID) Technology with the Northwest Food Processors Association and the Northwest Food Processors Education Research Institute (ERI) – Final Report**

**CONTACT NAME: Dave Klick, Northwest Food Processors Association**

**PHONE: 503-327-2244**

**EMAIL: [dmcgiverin@nwfpa.org](mailto:dmcgiverin@nwfpa.org)**

**PROJECT SUMMARY**

The Centers for Disease Control estimate that food-borne pathogens cause 325,000 U.S. hospitalizations and 5,000 deaths each year. High-profile recent events, such as the peanut-related salmonella outbreak that sickened more than 22,000 and killed nine, have put food safety squarely in the national spotlight.

Alarming, a disproportionate percentage of food-borne illness outbreaks are linked to specialty crops. Many specialty crop growers and processors are relatively small in scale, with less-standardized production systems. Many specialty crop growers and processors are located in isolated rural areas. Finally, the diverse nature of specialty crop production does not lend itself to standardized food traceability systems.

Current traceability systems in food and agricultural industries still operate under the guidance of the 1930 Perishable Agricultural Commodities Act (PACA), which focused on paper trail recordkeeping. The system is labor intensive, vulnerable to errors, slow and unreliable. Although many companies have adopted automated data capture via barcodes, the lack of standardization and significant amount of labor required for scanning still limits the effectiveness of external traceability (whole supply chain traceability) among trading partners.

This pilot project was part of an aggressive cluster initiative, launched by Northwest Food Processing Association (NWFPA) in 2003 to revitalize the food manufacturing industry in Oregon, Washington and Idaho. Cluster strategies include: 1) Increase the capacity of the Northwest's innovation infrastructure, 2) form strategic alliances and 3) increase the industry's operational productivity.

In January 2009, NWFPA co-sponsored, with Oregon State University (OSU) and Oregon Department of Agriculture (ODA), a two-day **Radio Frequency Identification (RFID) Workshop**. NWFPA, its non-profit subsidiary Northwest Food Processors Education and Research Institute (ERI) and OSU are also participating in a regional task force to develop a west coast RFID-enabled food safety and traceability system -- a multi-state collaboration between three universities, specialty crops industries, and state governments in Oregon, Washington, and California. A planning grant has been submitted to the USDA Specialty Crops Research Initiative (SCRI); funding is pending. If funded, the **Improving Food Safety, Traceability and Productivity of Northwest Specialty Crops Food Processors Using Radio Frequency Identification (RFID) Technology** pilot project will generate valuable preliminary information and data as well as experience for the 2010/2011 full proposal to USDA submitted by Oregon State University Food Innovation Center which was not funded. For detailed accounts and

technical knowledge and record please see the Traceability Technical Support Document (in the appendix).

**PROJECT APPROACH**

This project was awarded to NWFPA on October 1, 2009 and was originally planned as a two year project from October 1, 2009 to September 30, 2011. It was later approved with a one year extension to be complete by September 30, 2012 due to a delay caused by late withdraw of one food processing participants from Oregon. The project was approved initially for a total budget of \$235,000 with \$100,000 USDA SCBGP grant matched with \$125,000 in-kind and \$10,000 cash by NWFPA and its collaborators.

This project was designed and implemented through two industrial pilot projects through the collaboration among the Northwest Food Processors Education & Research Institute, Oregon State University’s Food Innovation Center, and industrial solution providers. It was to field test two RFID traceability systems at specialty crop processing facilities in Washington and Oregon. The first system was focused on the traceability system for improved production efficiency, tracking the location of product lots, through time, from farm field to processing plant. A second system was focused on development of an internal electronic traceability system for improving productivity and product recall for food safety through internal tracking of food ingredients in receiving, shipping and inventory.

Specifically, this project was planned to complete the following three activities 1) identify the hardware and software components of the effective RFID traceability system, 2) install needed pilot RFID system in two representative food processing plants, and 3) assess the real-world efficacy of installed RFID traceability systems in terms of production efficiency and food safety recall effectiveness.

From October 1, 2009 to September 30, 2012, we have completed the two pilot projects, one in Washington state, and one in Oregon state with modified activities to meet the actual demands of the two participating food processing manufacturers. The two specialty crop food processing plants were selected from the member processors of NWFPA. To encourage active participation from food processing plants, NWFPA made it clear that no specific names of the participating manufacturers would be disclosed in the research report or public presentation without authorized permission from the manufacturers. We, therefore, refer to the first food processing plant in Oregon as Plant A, and the second food processing plant in Washington as Plant B in the following sections of the report. In the section below, major project activities and the timeline are summarized and listed in Table 1, followed by the description of the specific project approaches for the two pilot projects in Washington and Oregon.

Summary of Major Project Activities

<i>Timeline</i>	<i>Project Activity</i>	<i>Who</i>
Y1Q1: October 1 – Dec. 31, 2009	a) Project planning through partner meeting; b) Developed project timeline; c) Planned educational traceability workshop through 2012 NWFPA Expo; d) Planned to attend 2010 RFID Journal Live International Conference;	NWFPA/OSU /INSYNC, INC

	<ul style="list-style-type: none"> <li>e) Developed the list of specialty crop pilot plant processor candidates in Oregon and Washington for identifying two food processors participants for the two pilot ;</li> <li>f) Conducted a tour of Oregon processing plant as possible pilot plant candidate in Oregon; g) identified four plant candidates.</li> </ul>	
Y1Q2: January 1 – March 30, 2010	<ul style="list-style-type: none"> <li>a) Visited second pilot plant candidate in Oregon</li> <li>b) Conducted the educational Traceability Workshop on January 20<sup>th</sup>, 2010 at NWFPA EXPO at Portland, OR. 40 people from food processing industry participated the workshop.</li> <li>c) Select and notified the pilot plant in Oregon as Plant A</li> <li>d) Conducted project assessment through second plant visit</li> <li>e) Established preliminary product line for implementing RFID enabled traceability system</li> <li>f) Updated and extended the RFID pilot project invitation list and continue pursue prospects for Washington pilot Plant B.</li> <li>g) Prepare to share about the RFID traceability project at the 2012 RFID Journal Live International Conference in April, 2010 at Orlando, Florida.</li> </ul>	<i>NWFPA/OSU /INSYNC, INC</i>
Y1Q3: April 1 <sup>st</sup> – June 30, 2010	<ul style="list-style-type: none"> <li>a) Continues working with Oregon Plant A to future development of information for needed implementation. However, the work has been delayed due to Plant A internal Enterprise Resource Planning ERP information system upgrade and training.</li> <li>b) Continued looking for Washington pilot plant candidates</li> <li>c) Conducted knowledge transfer to food industry and RFID technology professionals through RFID Journal Live Conference at Orlando, Florida on April 12, 2010.</li> </ul>	<i>NWFPA/OSU /INSYNC, INC</i>
Y1Q4: July 1 <sup>st</sup> – Sept 30, 2010	<ul style="list-style-type: none"> <li>a) Identified the second food processing pilot plant B in Toppenish, Washington and visited the plant</li> <li>b) Identified possible application areas for RFID enabled traceability</li> <li>c) Visited the Plant B in Washington second time and determined the objectives and scope of work for the second pilot project</li> <li>d) Acquired and collected field and plant operation information and data sheets for developing the RFID traceability system.</li> <li>e) Visited the Oregon pilot Plant A second time and identified one possible application area: cold storage and inventory</li> </ul>	<i>NWFPA/OSU /INSYNC, INC</i>
Y2Q1: October 1 <sup>st</sup> - Dec. 31, 2010	<ul style="list-style-type: none"> <li>a) Oregon Plant A withdrew as the participant due to their internal change of business operation</li> <li>b) Identified and visited the second Oregon pilot plant candidate</li> </ul>	<i>NWFPA/OSU</i>
Y2Q2: January 1 <sup>st</sup> – March 30, 2011	<ul style="list-style-type: none"> <li>a) Conducted traceability workshop at 2011 NWFPA Expo. On January 18, 2011 at Portland, Oregon. 44 food processors participated in the workshop and were updated on the pilot project, new traceability technologies and solutions.</li> <li>b) Collected needed production information and filed operation data from Washington Plant B</li> <li>c) Developed technical specifications for implementing RFID enabled traceability system for Washington Plant B</li> <li>d) Developed, configured, and lab tested the software solutions for tracking shipping tractor and trailers from harvesting fields to processing plant</li> <li>e) Requested one year no-cost extension due to unexpected withdraw of Oregon Plant A participant form the project and additional time for setting up the second Oregon pilot plant</li> </ul>	<i>NWFPA/OSU /INSYNC, INC</i>

	participant	
Y2Q3: April 1 <sup>st</sup> – June 30, 2011	<ul style="list-style-type: none"> <li>a) Acquisition of RFID hardware(s): including tags, readers, antennas, and wireless network,</li> <li>b) Site visit and installation of hardware and software</li> <li>c) Field testing hardware and set up software and wireless network.</li> <li>d) Training of field operators in Washington Plant B for application software</li> <li>e) Site survey and develop process flow chart in terms of receiving, shipping and inventory for the second Oregon pilot Plant A.</li> </ul>	<i>NWFPA/OSU /INSYNC, INC</i>
Y2Q4: July 1 <sup>st</sup> – Sept. 30, 2011	<ul style="list-style-type: none"> <li>a) Field integration of RFID traceability system and Plant B existing information system</li> <li>b) Final field testing of installed RFID traceability system</li> <li>c) Conducted the first round real time traceability and collecting implementation data and information</li> <li>d) Collected and evaluated the traceability data and information in terms of reliability and accuracy</li> <li>e) Modified and adjusted the system settings and user interface software to improve system performance and easy to operate.</li> <li>f) Conducted second round real time traceability and collected the needed traceability data and information</li> <li>g) Second round evaluation of system performance and obtained the feedback from operation managers in Washington Plant B.</li> <li>h) Developed scope of work for the Oregon Plant A and identified hardware and traceability solution software</li> </ul>	<i>NWFPA/OSU /INSYNC, INC</i>
Y3Q1: October 1 <sup>st</sup> – Dec. 31, 2011	<ul style="list-style-type: none"> <li>a) Continued running the Washington Plant B tracking operation and collected more tracking data for the rest of harvesting season.</li> <li>b) Summarized and prepared project progress report for Washington pilot Plant B to be presented in 2012 NWFPA EXPO in Jan., 2012</li> <li>c) Developed and configured traceability software based on ingredient inventory system and recall procedure in Oregon Plant A</li> <li>d) Identified the application areas of receiving and shipping for RFID enabled traceability</li> </ul>	<i>NWFPA/OSU /INSYNC, INC/ Mobia Solution</i>
Y3Q2: January 1 <sup>st</sup> – March 30, 2012	<ul style="list-style-type: none"> <li>a) Presented project progress to NW food processors at 2012 NWFPA Expo in Portland, OR on January 19, 2012.</li> <li>b) Trained operation managers at Oregon Plant A for using customized traceability information system</li> <li>c) Surveyed and updated wireless network system in Oregon Plant A to facilitate better wireless data communication inside processing facility</li> <li>d) Field tested real time mock recall system</li> <li>e) Modified the traceability software to make it more user friendly based on the field testing results</li> </ul>	<i>NWFPA/OSU /Mobia Solution</i>
Y3Q3: April 1 <sup>st</sup> – June 30, 2012	<ul style="list-style-type: none"> <li>a) Conducted second round real time product mock recall at Oregon Plant A</li> <li>b) Analyzed mock recall data compared to previous mock recall system for traceability and productivity</li> </ul>	<i>NWFPA/OSU /Mobia Solution</i>
Y3 Q4: July 1 <sup>st</sup> – Sept. 30, 2012	<ul style="list-style-type: none"> <li>a) Prepare and submit the project final report</li> <li>b) Conclude two pilot projects</li> </ul>	<i>NWFPA/OSU /Mobia Solution</i>

Two Pilot Purpose: To implement two pilot plant traceability projects, the first one focused on improving productivity and the second one on improving food safety recall. After careful evaluation of several pilot plant candidates in Washington and Oregon, touring of their facilities, and meeting with their operational managers during the first six months, it was decided that the Washington plant would be better suited for productivity improvement while the Oregon plant would be more beneficial for improving food safety recall. However, the first Oregon plant quit the pilot project after several months of involvement due to their own busy schedule and lack of management resources to continue the project. The second Oregon plant was then selected and officially joined the project at the end of 2010. The technical aspects of the two pilot projects are summarized as follows.

**Washington Pilot Project:** Plant B processes fresh corn to produce shelf stable canned corn. It is a vertical structured corn production plant, which manages its own cornfield for production and harvesting operation. In harvesting season, fresh corn is harvested and transported from the field to the processing facility using trucks and trailers daily according to daily production capacity of the plant. To define, design and implement effective RFID tracking system, the research team visited and conducted site surveys of the Washington Pilot Plant B. The team also met and discussed with their plant and operational managers several times to understand what their needs and productivity improvement opportunities for traceability.

To properly implement the RFID tracking system, the vehicles for transporting corn from the field to the plant were installed with RFID tags. RFID readers were installed at the critical points in the plant to capture the needed tracking information such as tractor and trailer identification number and the time stamp as the vehicle drives through the critical points.

Installation of readers at each dump site allowed system to collect and record tractors leaving, returning, and dumping time making available operational information that could be derived for decision making such as: (1) field trip time; (2) yard parking time; (3) number of trailer loads waiting for dumping, and (4) number of empty trailers available for next field trip. This type of information provided is very valuable information for real time operational management to improve productivity.

#### Results:

An RFID enabled tracking system of tractors and trailers from the harvesting field to the processing plant. In the period of 50 days from August 12 to October 06, 2011, the tracking system was running 24/7 continuously without breakdown. The effectiveness of the system was evaluated by looking at reading rate or accuracy at both scale houses and dump stations. Tables 1 and 2 (in appendix) show the performance of the two installed RFID systems. The accuracy of RFID system at the scale house was 99.9% after adjustment of RFID antennas on August 17<sup>th</sup>.

#### Accomplishments

- Developed and implemented automatic RFID enabled tractor and trailer tracking system from the harvesting field to the processing plant.
- Trained and educated food processors about smart traceability technologies and systems.
- The implemented RFID tracking system identified a total of 2126 tractors and 4252 trailers with a total of 57,894 tons of fresh corn during the 2011 harvesting season period from August 12 to October 16 with an accuracy of 99.9%.

- RFID tracking system was able to generate more valuable data and information than previous paper-based tracking. Such as:
  - Real time number of tractor and trailers in the plant;
  - The amount of corn in the shipping yard waiting for production;
  - Average amount of time for a round trip from the harvesting field to the plant.
  - The real time and amount of corn being dumped in the dump stations.
- Savings of labor that was required to manually identify tractors and trailers coming in and out of the plant, dumping time recording at each dump station and reconciliation of the daily manual recording errors.
- Shorten the time for generating trip tickets and waiting time for the tractor drivers to get right trip tickets.

Conclusions and Recommendations: The Washington pilot project was successfully implemented and RFID enabled tracking system was proved to be technically feasible and could generate more valuable information. These systems have potential to improve productivity of a food processing plants reducing labor and human errors caused by paper-based tracking system.

Food Processors with similar vertically integrated food production systems have potential to gain value from certain RFID applications and should perform thorough due diligence before deciding on a particular project.

Further study of hardware to withstand harsh industrial conditions and ways to advance dependability of the technology to interact consistently with RFID tags, software and legacy systems is recommended.

**Oregon Pilot Project:** Plant A was chosen to be the second pilot project to demonstrate the effectiveness of RFID enabled tracking system to improve food safety recall process.

This is a small local food processor that produces high quality frozen veggie patties using fresh vegetables and grains. To develop an effective recall process, it is essential to understand its existing internal inventory system from raw ingredients to finished products.

Previous Internal Inventory System: There are currently 8 different frozen veggie food products at Oregon Plant A, and manufactured from over 45 unique ingredients with a monthly production of 17,000 lbs. At receiving, the ordered food ingredients were received and stored into three different storage areas: freezer, refrigerator, and standard room storage. To start the manufacturing process, the required ingredients for a veggie burger is brought to formulation room from the three storage areas. They were then weighed according to its formulation. Next, all ingredients are mixed uniformly before being formed into right size patties and then packaged into finished products. They are finally moved to the freezer to be frozen and held for shipping.

Previous Recall System: To meet food safety recall requirements, all manufacturing, inventory, receiving and shipping information of the ingredients and finished products have to be properly documented, organized, and kept safely for quick reference. The previous mock recall system was entirely paper-based. All lots of ingredients were tracked by recording quantities/lots used on batch sheets, which were used to manufacture finished product. The finished product was then tracked by date code in an excel spreadsheet.

Two types of product recalls for Oregon Plant A: (1) product recall caused by one or more contaminated ingredients used for a finished product, and (2) product recall caused by contamination from the company's manufacturing process itself. The former has to be tracked to a specific ingredient and its suppliers and the latter will be limited only within the company itself.

In order to perform a product recall, relevant records and documents have to be evaluated to quickly (1) allocate the physical location or storage of the recalled ingredients and products, and (2) count actual inventory of the recalled ingredients and products.

Scope of work: The scope of this pilot project was to develop an electronic inventory tracking system then implement mock recalls to demonstrate its effectiveness compared to previous paper-based tracking system.

Results: A real time mock recall on two finished products related to one contaminated ingredient sweet potato was conducted on May 29, 2012 using the Mobia Solutions tracking and inventory system. Two products selected for this mock were 2.5 oz. retail Veggie Product 1 and 2.5 oz. retail Veggie Product 1 WIP. There was 1 pallet of Veggie Product 1 and 302 lbs. of Veggie Product 1 WIP shown in inventory. Recall accuracy was 100% and was completed in 13 minutes by two people. There were 20 lbs. of the recalled contaminated ingredient, sweet potato, stored in the cooler, which had an expiration date of 11/23/2012. The sweet potato recall was completed in 3 minutes with a recall accuracy of 98% by two people.

#### Accomplishments

- Developed and implemented the electronic tracking system in Oregon Plant A.
- Successfully conducted mock recall on two products and one contaminated ingredient.
- Trained and educated food processors about smart traceability technologies and systems.
- Eliminated paper-based recall system and converted all paper-based product recall and inventory systems to an electronic inventory and recall system.
- Improved recall time, recall accuracy, inventory system and production efficiency.

Conclusions and Recommendations: Oregon pilot project was successfully implemented and the developed smart electronic tracking system can significantly improve food safety related recalls with 100% accuracy for two finished product recall and 98% for ingredient recall.

Food processors that still use paper-based inventory systems have potential to improve food safety recall but also improve the efficiencies of receiving, shipping, and inventory, therefore, overall production efficiency if they convert to similar electronic tracking systems.

Project Partners and Contributions: Multiple partners involved and contributed significantly to the success of this project: Oregon Plant A (Natural Foods Processor) NWFPA, Food Innovation Center of Oregon State University, and Mobia Solutions. Dave Klick and David McGiverin from NWFPA managed the project in terms of planning, selecting pilot project candidate as well as budget management. Dr. Qingyue Ling of Food Innovation Center provided technical consulting for the project in the areas of identify and select technical solution providers, most

importantly worked with solution provider to collect site information and design the smart electronic tracking system, including hardware and software set up. Dave Miller of Mobia Solutions, Inc. designed and configured the tracking application software and trained the operational managers at Oregon Plant A to use the software. Washington Plant B (a corn processing plant) and INSYNC, Inc that contributed design and installation of Washington Plant B.

## **GOALS AND OUTCOMES ACHIEVED**

Activities: Installed hardware and software in two separate organizations to test the abilities and benefits of RFID based traceability. We were able to achieve this by cohesive planning and collaboration among company representatives and project partners. In addition we educated specialty crop producers through workshops and conferences to bring awareness of the multiple possibilities and benefits of adopting such technologies.

### Proposed measurable outcomes

- The number of specialty crops food processors in Oregon and Washington with RFID enabled traceability systems will be increased from current 0 to 7 or more companies in two years after the pilot projects are completed. This is a long-term goal that will be tracked through continued surveys.
- Average recall time (traceability) for these companies using RFID technology will be at least 50% faster and result in 15% saving in labor cost.
- The average productivity improvement for these companies will be 15% in labor saving, 10% reduction in inventory efficiency, and 20% time reduction in receiving and shipping.
- In 2010 and 2011, an NWFPA EXPO RFID workshops were held and at least 30 or more food processors will be expected to participate. Also those years, briefings will be conducted for at least 55 top management delegates attending the Annual Northwest Food Processors Executive Business summit.

### Actual Measurable Outcomes

#### 1) Oregon Plant A:

##### **a. The amount of labor saved for recall:**

Previous: 3 persons

Current: 1 person

Percentage saved: 200%, compared to 15% target

##### **b. The amount of recall time:**

Previous: 4 hrs. or 240 min.

Current: 16 min.

Percentage saved: 1500%, compared to 50% target

##### **c. Inventory efficiency:**

Previous: 2 persons for 7.5 hrs./wk. or 15 person hrs./wk

Current: 1 person for 5 hrs./wk or 5 person hrs./wk

Percentage reduction: 300%, compared to 10%

##### **d. Receiving and shipping time reduction:**

Previous: 4.5 hrs./day

Current: 1 hr./day

Percentage reduction: 450%, compared to 20% target

2) Washington Plant B for 2011 harvesting season:

a. **The amount of labor saved:**

Previous: 3 persons

Current: 2 persons

Percentage saved: 150%, compared to 25% target

b. **Inventory efficiency:**

Previous: 3 persons for 8 hrs./day or 24 person hrs./day

Current: 2 persons for 4 hrs./day or 8 person hrs./day

Percentage reduction: 300%, compared to 15% target

c. **Receiving and shipping time reduction:**

At scale house

Previous: 5 min./tractor x 40 tractors/day = 200 min./day

Current: 1 min/tractor x 40 tractors/day = 40 min./day

Percentage reduction: 500%, compared to 20% target

At Dump stations

Previous: 2 min./tractor x 40 tractors/day = 80 min./day

Current: 0.2 min/tractor x 40 tractors/day = 8 min./day

Percentage reduction: 1000%, compared to 20% target  
The progress and outcomes of the two pilot projects were presented and shared with 120 food processors and companies in the annual NWFPA EXPO Traceability Workshops and other professional conferences from 2010 to 2012.

## Year 2010

Traceability System Forum at the 94th Annual Northwest Food Manufacturing & Packaging Expo, Oregon Convention Center, Portland, Oregon, January 20, 2010



FDA's Michael Taylor opened the session with brief remarks on the importance of good traceability systems to FDA investigations of food contamination. Additional presentations were given with Q&A include: 1) Highlights from IFT's Food Traceability Recommendations to FDA; 2) Exciting new opportunities to automate traceability through Open Data Registry presented; and 3) a report on the USDA-funded specialty crop RFID Pilot Plant project, started in early 2010, along with actions by a coalition to investigate new technology and systems to improve existing food traceability.

Over 50 industrial representatives participated in this conference.

Pre-Conference Workshop "RFID Applications in Food Chain", 2011 RFID Journal Live Conference, Pre-Conference Workshop, Walt Disney World Swan and Dolphin Hotel in Orlando, Florida. April 13-16, 2011. 21 international industrial representatives attended the workshop

## Year 2011

Sponsored and organized 2011 NWFPA Expo Food Traceability workshop. about 36 food processors and discussed industrial concerns about the Food Safety Modernization Act (FSMA), the workshop was held at the Oregon Convention Center, Portland, OR, January 20, 2011.

## Year 2012

NWFPA and FIC organized the 2012 NWFPA Expo Food Traceability Workshop: held at the Oregon Convention Center, Portland, OR, January 17, 2012. 27 food processors participated

## **BENEFICIARIES**

Within the scope of the project Oregon Plant A received 200% labor hrs. savings, 1500% recall time savings, 300% improved inventory efficiency and 450% receiving and shipping time reduction. Washington Plant B benefited from 150% labor savings, 300% inventory efficiency and 500%-1000% shipping and receiving gains. Because of this project industry now has better knowledge of RFID and Smart Traceability System and the different considerations and challenges associated with implementation. Many food processors have interest to adopt some of these practices but are waiting for technology to become a little more reasonably priced. NWFPA and Oregon State Food Innovation Center are now a source of information on RFID and Smart Traceability Systems for the industry.

## **LESSONS LEARNED**

Positives of this project included;

- Company's leadership involvement and commitment from the beginning was key in successful implementation of this pilot project,
- Selected the right management members to form the project team,
- It was essential to identify proper application areas that could achieve business improved productivity and food traceability for both participating companies This helped increase level of commitment and participation.
- Provided proper training and education to the operators,
- Selected the right solutions and solution providers,
- Started small and slow to allow participant companies came to speed.

Negatives of this project included;

- The first Oregon Plant A Management teams decision to quit the project after almost one year into the project caused a set back that resulted in not enough time to finish all objectives,
- Washington Plan B was too far away to have more site visits for technical support and testing work, short window of the harvesting season for Washington project created difficulties in planning and implementation,
- and unable to take advantage of existing wireless network caused the project unexpected extra expenditure in wireless communication, thus limited funding for more testing and better performance.

The first chosen Oregon pilot plant management team's decision to quit the pilot project caused significant delay of the whole project and left not enough time to finish RFID enabled tracking for the Oregon Plant A even though one year extension was granted.

Due the over budget spending in the Washington pilot project, caused by unwillingness to share the wireless network in the plant, we did not have limited funding left for the second Oregon pilot project.

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**S17 TITLE: Developing a Production-based Systems Approach Program for Producing Nursery Stock with the Oregon Association of Nurseries – *Final Report***

**CONTACT NAME:** Curt Kipp, Oregon Association of Nurseries

**PHONE:** 503-582-2008

**EMAIL:** [ckipp@oan.org](mailto:ckipp@oan.org)

## **PROJECT SUMMARY**

Exotic plant pests and pathogens are a major threat to Pacific Northwest specialty crop growers, both due to damage to crops and due to the regulatory impact. Infestations can cause a loss of markets and sales. They can also be quite costly to the public, creating a need for expensive, publicly-funded eradication efforts.

The globalization of the world economy has accelerated the spread of these pests and pathogens through increased import activity. To name a few examples, the region has in recent years seen the introduction of the light brown apple moth (LBAM), the citrus longhorned beetle (CLB), the Asian gypsy moth (AGM), and *Phytophthora ramorum*, the pathogen that causes the disease popularly known as Sudden Oak Death.

To address the introduction and spread of these pests and pathogens, and the diseases they cause, on nursery stock, the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) ratified the Plants-for-Planting Standard (RSPM #24), as did Canada and Mexico. Through this standard, the countries all agreed that industry and plant health programs should “shift mitigation measures from primary reliance on visual inspection and sampling to comprehensive production systems controls at origin.”

To implement this agreed-upon approach required development of a unified set of production and management practices, grounded in a prevention-based approach that provides for rapid response when a pest or disease problem manifests itself. This project was created in response to this need. As noted the Safe Procurement and Production Manual — one of the main work products of this grant project — “We believe that when it comes to preventing the introduction and spread of plant pests and pathogens, a proactive approach — one that’s holistic and intelligently targets areas of highest risk — is better than a reactive approach.”

## **PROJECT APPROACH**

First, Dr. Jennifer Parke of Oregon State University (OSU) led a group of student workers who conducted a literature review of the practices already out there for nurseries in the areas of safe procurement, sanitation, critical control points and systems approaches. She compiled a searchable database with this information and assembled electronic files (PDFs) of journal articles. Is this available online?

Then, workshops were held to discuss best management practices and identify pests and pathogens of highest concern. The first was an informal meeting. The second workshop was held Aug. 2, 2010. Information generated from these meetings was included in the final manual and will be used to identify future research priorities.

Next, the authors representing various partner organizations (as outlined below) wrote a 98-page manual based on the literature that was assembled. The main authors from the scientific community included Drs. Jennifer Parke of OSU, John Griesbach of Ascent Agricultural Services LLC, Gary Chastagner of Washington State University (WSU) and Niklaus Grunwald of the USDA Agricultural Research Service (ARS). Several other contributors also provided language, input and feedback. Dr. Griesbach then sent the draft manual out for a peer review by one technical reviewer from USDA and two reviewers from the academic community.

The manual was edited and designed for print and electronic publication by Curt Kipp of the Oregon Association of Nurseries (OAN) staff. It was published with an initial run of 600 copies, and due to popular demand, an additional 300 were printed. The revised edition included a few corrections, plus the addition of a water treatment table. Of the total of 900 copies printed, the OAN has a remaining inventory of about 100 copies of the manual, the remainder having been distributed throughout the industry. The current edition of the manual is available for anyone to download as a PDF from the OAN website at

<http://www.oan.org/displaycommon.cfm?an=1&subarticlenbr=861>

Dr. Parke presented a workshop on the systems approach, based in large part on the manual and the best management practices that were developed for it. This took place on January 26, 2012 at the NW Ag Show in Portland, Ore. About 60 people from the nursery industry and scientific community attended and gave positive feedback. The video is available at

<http://www.oan.org/displaycommon.cfm?an=1&subarticlenbr=982>

An additional workshop was proposed for the Farwest Show nursery trade show in August 2012, but it was not a good fit with other program offerings.

The manual has been well received within the industry. Several states are using it as part of their systems approach efforts. We have received inquiries and notes from natural resources leaders in Tennessee, California and Hawaii. The National Plant Board Systems Approach to Nursery Certification Committee has recommended it for use as a training tool for state nursery inspectors across the country.

## **GOALS AND OUTCOMES ACHIEVED**

The major outcomes of the project are as outlined above. They included the synthesis of known systems approach techniques from different resources into a cohesive whole, and the sharing of that information throughout the industry in a manual that growers easily can read, understand and adopt in their nursery operations. The manual was supplemented with a presentation and video that also relayed the material in an easy-to-understand way. In addition the workshops were held to identify pests and pathogens of highest concern.

One project goal was that adopting facilities would see a 90 percent drop of regulated pest interceptions as compared to non-adopting facilities. As indicated in OAN's request for grant amendment dated May 2011, OAN will conduct an online survey and 10 stakeholder interviews in July 2013 to measure actual performance.

## **BENEFICIARIES**

Nursery growers were the main beneficiaries of the project. It provided them with a resource they can use to adopt the systems approach in their own nursery operations, step by step. Furthermore, it made a strong case as to why they should consider doing so.

OAN distributed 800 hard copies of the book to owners, operators, researchers in the nursery industry nationwide (about 100 copies are left). The project benefitted all Oregon nurseries by demonstrating the systems approach and preventing infestation of nurseries in the state. The project has been used as a national model for best management practices by the nursery and greenhouse industry. The economic impact of promoting these best practices would be speculative, because one can't quantify the infestations that didn't happen, and the pests and pathogens that didn't spread, due to nurseries adopting these practices. However, we believe the economic benefit to be quite significant.

## **LESSONS LEARNED**

The Systems Approach offers a methodology that is broadly effective against threats from pests and pathogens, both known and unknown. It helps growers isolate and identify minor threats before they can spread throughout the operation and become major threats.

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**S18 TITLE: Bringing More Oregon Fruits and Vegetables into School Cafeterias – a toolkit and foodservice training to increase student access to local fruits and vegetables and provide consumer education for students and families with the Oregon Department of Education Child Nutrition Program – *Final Report***

**CONTACT NAME: Rick Sherman, Oregon Department of Education**

**PHONE: 503-947-5863**

**EMAIL: [Rick.Sherman@state.or.us](mailto:Rick.Sherman@state.or.us)**

## **PROJECT SUMMARY**

The Oregon Department of Education Child Nutrition Programs (ODE CNP) sought to increase market opportunities for Oregon fruit and vegetable producers by removing barriers to school sales and by educating students and families about the value of Oregon fruits and vegetables, thereby increasing access to local fruits and vegetables in school cafeterias and in the Fresh Fruit and Vegetable Program (FFVP). This was done by developing an online school foodservice toolkit with recipes and nutrition analysis, menu examples, nutrition facts, procurement guidance, and resources for promoting twelve local fruits and vegetables in school cafeterias (see appendix).

Oregon schools purchase and serve fruits and vegetables for breakfast, lunch, and snacks but most schools do not seek out and purchase Oregon specialty crops for school meals or for the USDA FFVP. School children are important consumers, yet few Oregon school districts are using cafeteria and classroom education activities to increase knowledge and consumption of Oregon grown fruits and vegetables. Two recent Oregon school foodservice surveys show a strong interest in purchasing local fruits and vegetables. These same surveys identify lack of purchasing and preparation skills as a barrier.

## **PROJECT APPROACH**

A web-based school foodservice toolkit was created that includes identification of twelve fruits and vegetables available locally and seasonally, information about rules and procedures for purchasing products directly from farmers, food safety and how to use fruits and vegetables in menus and recipes. These can be found at [www.ode.state.or.us/go/h4s](http://www.ode.state.or.us/go/h4s).

Four trainings were designed and provided for 84 school nutrition service staff members on implementing of the fruit and vegetable education program.

Western region farm to school network meetings were attended to provide expertise and program ideas with other states for increasing specialty crop use in schools. Two western regional farm to school network meetings were attended by ODE staff to provide expertise to and gain ideas from eight other states for increasing specialty crop use in Oregon schools.

Significant contributions were received from the following project partners:

- ***Willamette Farm and Food Coalition (WFFC):***
  - *WFFC* participated in the Advisory Group (AG) to assist in planning a web-based foodservice toolkit to include user-friendly tools for procuring, preparing, serving, and promoting the targeted fruits and vegetables.

- *WFFC* created and provided educational content for the posters, family newsletters and other promotional materials.
- **Ecotrust:**
  - Provided input on the development of the Oregon Harvest for Schools materials and website toolkit via the Advisory Group – emails, calls, and one in-person meeting in Salem where the draft designs were unveiled and we were able to provide feedback on the look and feel of the project.
  - Provided input to development of the food service surveys ODE CNP developed.
  - Asked for input and shared results from some surveys we did with food service via FoodHub.
- **USDA Farm to School:**  
Provided input on the development of the Oregon Harvest for Schools materials and website toolkit via the Advisory Group.
- **Oregon Department of Agriculture (ODA):**
  - *ODA* participated on the Advisory Group and attended stakeholder meetings to inform toolkit development.
  - *ODA* reviewed promotional materials, and sought review and input from Commodity Commissions on promotional materials on an as-needed basis.
  - *ODA* continues to help disseminate materials and mentions the availability of the materials in public presentations.
  - *ODA* is the Oregon Host Site for FoodCorps. *ODA* included a requirement for all FoodCorps Service Sites to utilize Oregon Harvest for Schools materials to the greatest extent practicable.
  - *ODA* helped distill learnings from this project and scope Phase II of the toolkit development.
  - *ODA* then project managed Phase II of the toolkit development that built upon this successful project

## GOALS AND OUTCOMES ACHIEVED

Two phone surveys were established to measure the goals of expanding the market for Oregon – grown fruits and vegetables by increasing the number of school districts buying direct from Oregon growers through distributors and implementing the new fruit and vegetable program in at least five school districts. A question about local purchases in the yearly FFVP reporting process was included to measure the third goal of increasing the number of FFVP purchasing local produce from one to the target of ten.

Through the combined efforts of ODE CNP and its partners, by establishing the online toolkit, coupled with the educational materials and training opportunities, we were able to positively impact the purchasing of Oregon fruits and vegetables well over our goal amount.

- *Goal #1:* Expand the market for Oregon-grown fruits and vegetables – increase the number of school districts purchasing OR fruits and vegetables from benchmark of 66 to 73 districts (10% increase) by 2012. *Actual result:* During the 2012 survey, it was reported that 84 Districts were purchasing local fruits or vegetables, **an increase of 27%**.

- *Goal #2:* Implement the new Fresh Fruit & Vegetable Program (FFVP) in at least five school districts by 2011. *Actual result:* **31 Districts** have currently implemented the program by the 2012 survey.
- *Goal #3:* Increase the number of FFVP's purchasing local produce. From one to 10 in 2011. *Actual result:* **25 Districts** are purchasing local produce for their FFVP.

## **BENEFICIARIES**

The groups that benefitted from this were school children that attended schools that implemented the materials and training provided by this grant, by increased exposure to local fresh fruits and vegetables, and the local farmers that had increased volume of sales for their products sold to the school cafeterias. ODE conducted two surveys that showed that the number of the school districts increased in purchasing local fruit by 61% (an increase in 33 school districts purchasing fruit), and increased purchasing local vegetables by 55% (an increase in 33 school districts purchasing vegetables).

The phone interviews clearly showed that many more school districts were able to serve Oregon fruits and vegetables. The educational materials distributed with the toolkit provided opportunities for the school children to know that they were exposed to local items. Our surveys show more school districts are purchasing local items. Given the resources of this grant, it was not feasible to track the volume of sales for local farmers. We can assume they increased, but we do not know by how much. We have reached out to seven major distributors (all major produce distributors in the State) and the Oregon department of Agriculture, to seek their assistance to quantify the volume of specialty crops sold to schools. For future iterations of this project should develop a more robust inventory and tracking system. The thirty largest school districts are displaying these items in their school districts. In just the top ten largest school districts (including Portland, Salem-Keizer, Beaverton, Eugene, and Hillsboro), we are reaching 169,027 or 29% of the students in the state (of the 575,393 students in the state).

## **LESSONS LEARNED**

**The following were learned by project staff as a result of completing this project.**

- When developing future educational materials, do not have some of them in a place where they are not accessible, like the back of a poster.
- Have a more user-friendly approach to make it so educators and other people will *want* to use the material rather than just hang up the posters (solely as decoration) provided.
- If motivated, schools used the educational materials extremely well.

**The following unexpected outcomes or results were effected by implementing this project.**

- One thing that we did not anticipate was the vast population Oregon has of Hispanic population. We needed to go back and translate our newsletters into Spanish, so we would want to keep that in mind the next time we do a project like this. Also, we had an initial goal of completing nine fruit and vegetable posters. We ended up doing twelve, but also we did a thirteenth: one that depicted all twelve fruits and vegetables due to popular demand.

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**S19 TITLE: Marketing Integrated Pest Management (IPM) and Sustainable Production: Developing and Accessing Value-Added Markets for Pacific Northwest Hops with the Oregon Hop Commission – *Final Report (Approved 1/30/12)***

**CONTACT NAME: Nancy Frketich, Oregon Hop Commission**

**PHONE: 503-982-7600**

**EMAIL: [nancy@oregonhops.org](mailto:nancy@oregonhops.org)**

**PROJECT SUMMARY**

Nearly all U.S. hop production occurs in Oregon, Washington, and Idaho. Although the quality and consistency of U.S. hops are outstanding, they are underutilized by some domestic breweries due, in part, to perceptions that European hops are superior. The overall goal of this project is to identify, develop, and access new markets for U.S. hops to sustain and grow the economic viability of this industry. To accomplish this goal, we will conduct research and demonstration studies to accelerate and highlight producer adoption of integrated pest management tactics and sustainable hop production. We will leverage and expand current international promotion efforts to engage domestic brewers that underutilize U.S. hops through targeted outreach and marketing, emphasizing value-added, sustainable production certification programs. The specific objectives to accomplish these goals are:

1. Establish on-farm research to quantify and document the value of IPM approaches for priority pests and diseases;
2. Conduct targeted marketing and outreach with U.S. brewers that currently utilize imported hops; and
3. Engage producers and extend results through established public-private partnerships.

Completion of these objectives should enhance the competitiveness of the U.S. hop industry, speed adoption of sustainable production practices, and create economic opportunities for hop producers and their rural communities.

Hops are an economically important specialty crop in the Pacific Northwestern U.S., producing nearly the entire U.S. supply and greater than 30% of the world's supply (George, 2008). In 2008, hop production generated over \$319 million in farm gate value from over 40,000 acres in Washington, Oregon, and Idaho. Because over 60% of the crop is exported to overseas markets, hop production contributes positively to the U.S. agricultural trade balance.

Hop selection and utilization by brewers is based on brewing characteristics, such as essential oil content and bittering characteristics (e.g, alpha acid content), but also subjective factors such as region or origin, appearance, and overall aroma. Among some brewers, perceptions exist that European produced hops are superior based on some of these subjective measures. A notable example is Boston Beer Company, which promotes use of Bavarian hops in its Samuel Adams brand beer saying these hops are "...among the world's most expensive, they cost twenty times as much as other hops." However, the U.S. hop industry produces similar or identical "Bavarian-style" varieties at a lower cost per unit and with less inputs and is therefore well positioned to serve this and other domestic markets. Efforts are needed to identify and target

breweries that underutilize Pacific Northwest hops and develop value-added products to maintain the competitiveness of the U.S. hop industry.

The need for this project has been documented explicitly by stakeholders in the Pest Management Strategic Plan (PMSP) for Hops in Oregon, Washington, and Idaho (DeFrancesco and Murray, 2008). In the recently completed PMSP, stakeholders identified development and validation of effective IPM approaches for priority pests among the top research priorities. Stakeholders also documented that education priorities should include: (i) development of IPM guidelines and best management practices for common pests; (ii) training on important considerations in the use of different pesticides such as sensitivity of beneficial organisms; (iii) reducing input costs for pest management; and (iv) integrating results of diverse research efforts in a format readily usable by growers. This project clearly aligns with these priorities.

## **PROJECT APPROACH**

In this specialty crop grant we had three separate objectives to this project so I will address each project separately.

### ***Objective 1. Establish on farm research to quantify and document the value of IPM approaches for priority pests and diseases.***

To quantify the associations of the combined effects of cultural and chemical treatments on diseases and arthropods, paired research plots were established in each of three or four commercial hop yards in Oregon and Washington in 2010. In these hop yards, two pest management approaches were evaluated that consisted of (1) sulfur fungicides, bare soil between rows, and removal of basal foliage with chemical desiccants vs. (2) limited deployment of sulfur fungicides up to May 30, cover cropping with a cereal crop between rows, and limited or no removal of basal foliage on plants. These treatments were designed based on previous research that found the elements of program (2) improved suppression of certain arthropod pests, but with a potential tradeoff for disease management. In 2011, the same treatments were replicated in a randomized complete block design in a hop yard in Oregon (cv. Willamette) and Washington (cv. Tomahawk). Additionally, these treatments were replicated in every possible combination in a split-split plot design with five replications each in experimental plots in Oregon in both 2010 and 2011.

Leaf samples were collected biweekly beginning with a pre-treatment assessment in spring and continued until harvest to enumerate pest and beneficial arthropods and powdery mildew levels in response to each treatment. In Oregon, levels of downy mildew also were assessed by counting the number of shoots affected by downy mildew on a subset of plants in each plot. Yield and cone quality factors were assessed in the experimental plots and the commercial hop yards in Oregon. Data from the replicated trials were analyzed using standard mixed model approaches.

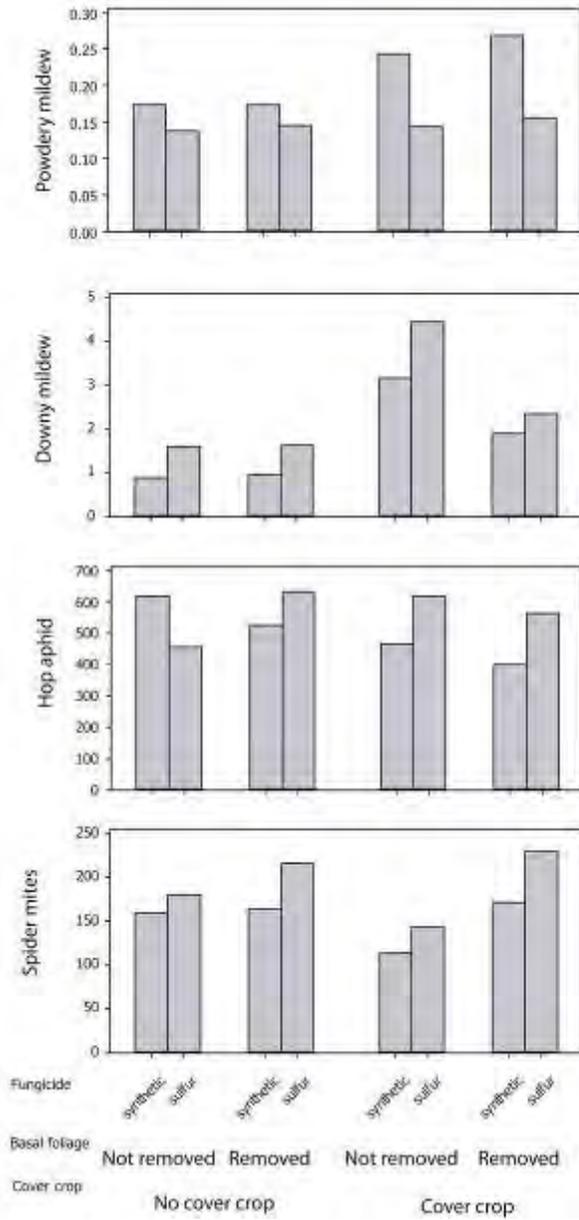
*Experimental plots.* We found that most of the treatments did not consistently affected either of the diseases or arthropod pests, either in commercial hop yards or experimental plots; mean pest severity in the experimental plots is presented in Figures 1 and 2, with associated statistical analysis in Table 1. In experimental small plots in 2010, significant treatment effects were found for cover cropping vs. bare soil (increased levels of downy mildew with cover cropping),

synthetic fungicide use vs. sulfur fungicides (increased levels of powdery mildew, but decreased levels of spider mites and aphids with synthetic fungicide use), and basal foliage removal vs. no removal (increased levels of spider mites with basal foliage removal). In 2011, each pest and disease responded differently than in 2010, with the only statistically significant difference being basal removal decreased levels of downy mildew.

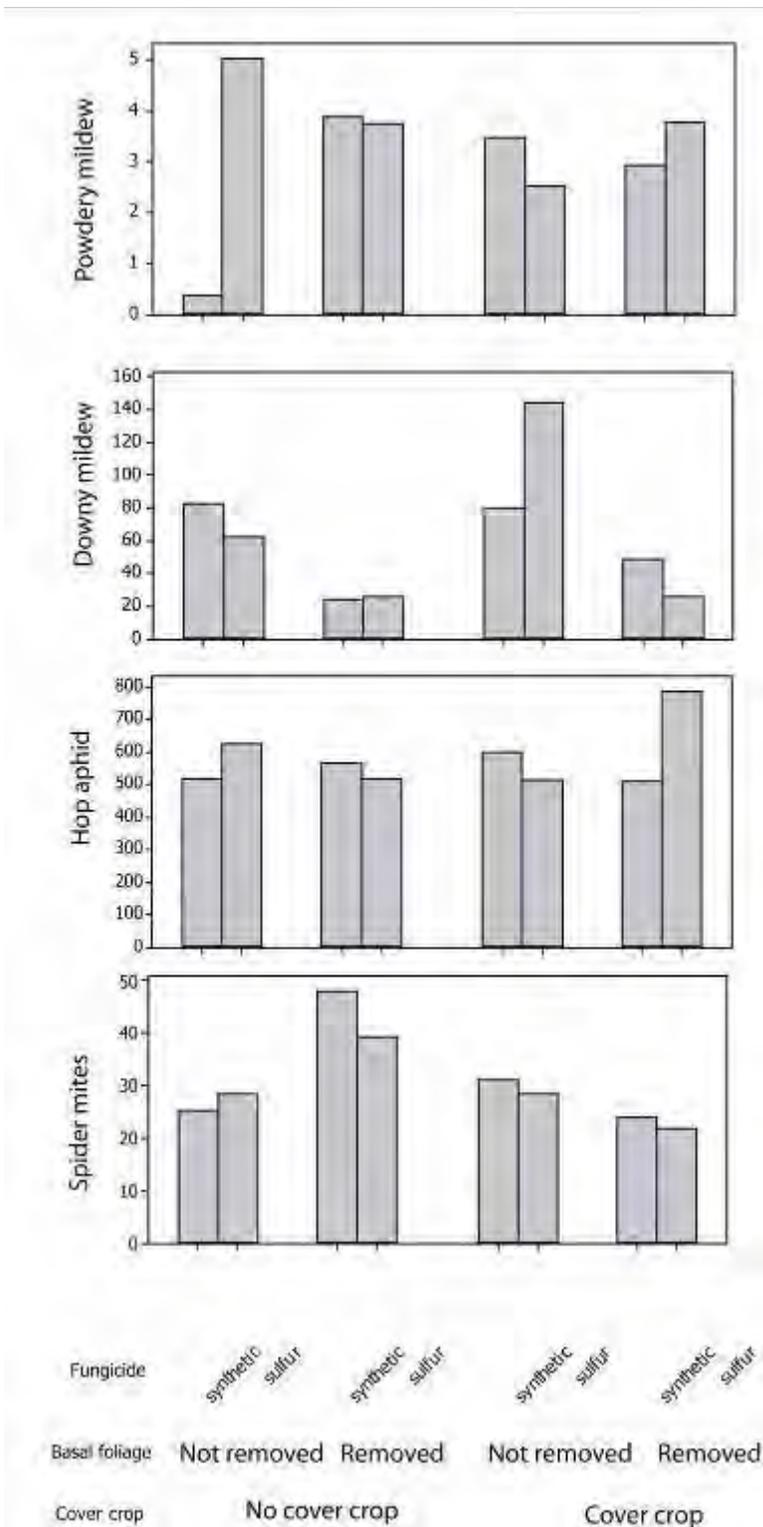
Yield and levels of bittering acids were mostly unaffected by the treatments in both years, although cover cropping did significantly reduce yield 13% compared to bare soil in 2011 (Table 2). Correspondingly, alpha acid content was significantly increased (0.38%) by cover cropping and reduced (0.34%) by basal foliage removal in 2011, but the effect of basal foliage removal depended on cover cropping (Table 2). Alpha acid content of cones was 4.8% in plots with bare soil and basal foliage removed, but 5.6 to 5.7% percent if there was a cover crop present or the basal foliage was maintained.

*Commercial field plots.* In commercial plots in 2010 and 2011, we also found site-specific responses to most of the treatments. Pest and natural enemy levels were not consistently suppressed or exacerbated across all locations (e.g., Table 3), suggesting that timing of treatment deployment or other factors at each farm moderated the effects of the treatments. Abundance of natural enemies was most closely associated with levels of pest arthropods rather than a given treatment.

A consistent effect was found, however, for basal foliage removal on powdery mildew levels on leaves and, particularly, cones (Table 4). In a combined analysis of data from the seven fields in Oregon and five fields in Washington over 2010 and 2011, the incidence of powdery mildew on leaves and basal foliage removal were associated with the incidence of powdery mildew cones. However, the effectiveness of basal foliage removal depended on disease levels on the leaves. That is, when disease levels on leaves were very high or very low basal foliage removal had little effect on the incidence of powdery mildew on cones, but at intermediate levels of disease on leaves the occurrence of the disease on cones was reduced. More aggressive removal of basal foliage could substantially improve control of powdery mildew, particularly on cones, although caution should be exercised when spider mites are present in basal foliage since this practice may exacerbate mite outbreaks in certain years as observed in the experimental plots (Table 1). A yield depression from this treatment should not be expected, although in certain years it may slightly reduce levels of alpha acid.



**Figure 1.** Mean severity (expressed as area under the pest development curve) of powdery mildew, downy mildew, hop aphid, and spider mites in response to cultural and chemical treatments in experimental plots in 2010.



**Figure 2.** Mean severity (expressed as area under the pest development curve) of powdery mildew, downy mildew, hop aphid, and spider mites in response to cultural and chemical treatments in experimental plots in 2011.

**Table 1.** Significance of fixed effects of cover cropping, basal foliage management, and fungicide-type on downy mildew, powdery mildew, spider mites, and hop aphid in experimental plots in 2010 and 2011. Bold values indicate statistically significant treatment effects.

Effect	Downy Mildew			Powdery Mildew			Spider mites			Hop aphid		
	Den DF	F value	P-value	Den DF	F Value	P-value	Den DF	F Value	P-value	Den DF	F Value	P-value
2010												
Cover crop	3.76	6.43	0.0682	4	0.39	0.5654	8	0.54	0.4840	4	0.77	0.4295
Basal foliage	19.7	1.55	0.2280	24	0.13	0.7204	24	5.64	<b>0.0259</b>	8	0.23	0.6458
Cover crop*Basal foliage	19.7	1.14	0.2989	24	0.06	0.8113	24	3.22	0.0853	8	1.70	0.2289
Fungicide	19.94	1.99	0.1739	24	4.90	<b>0.0367</b>	24	4.35	<b>0.0478</b>	16	4.72	<b>0.0452</b>
Cover crop*Fungicide	19.94	2.10	0.1630	24	1.46	0.2392	24	0.20	0.6577	16	13.74	0.0019
Basal foliage*Fungicide	19.7	0.05	0.8232	24	0.00	0.9682	24	0.19	0.6669	16	4.48	0.0504
Cover crop*	19.7	0.30	0.5923	24	0.03	0.8735	24	0.00	0.9686	16	5.89	0.0274
Basal Foliage*Fungicide												
2011												
Cover crop	3.85	0.81	0.4208	32	0.01	0.9439	4	0.02	0.8878	32	0.00	0.9623
Basal foliage	7.82	14.95	<b>0.0050</b>	32	0.44	0.5129	8	0.46	0.5011	32	0.00	0.9950
Cover crop*Basal foliage	7.82	0.41	0.5427	32	0.12	0.7311	8	2.92	0.0973	32	0.22	0.6406
Fungicide	15.85	0.05	0.8316	32	0.98	0.3294	16	1.22	0.2779	32	0.74	0.3951
Cover crop*Fungicide	15.85	0.41	0.5318	32	1.09	0.3050	16	0.27	0.6048	32	0.05	0.8172
Basal foliage*Fungicide	15.85	1.67	0.2143	32	0.45	0.5063	16	0.00	0.9833	32	0.61	0.4400
Cover crop*	15.85	2.47	0.1359	32	2.23	0.1450	16	0.01	0.9281	32	2.11	0.1557
Basal Foliage*Fungicide												

**Table 2.** Significance of fixed effects of cover cropping, basal foliage management, and fungicide-type on yield and alpha acid content of cones in experimental plots in 2010 and 2011. Bold values indicate statistically significant treatment effects.

Effect	Yield			Alpha acid		
	Den DF	F value	P-value	Den DF	F Value	P- value
2010						
Cover crop	32	2.17	0.1507	16	0.15	0.7016
Basal foliage	32	0.00	0.9875	16	0.14	0.7095
Cover crop*Basal foliage	32	2.69	0.1105	16	0.47	0.5035
Fungicide	32	1.93	0.1745	16	2.44	0.1379
Cover crop*Fungicide	32	1.82	0.1869	16	1.07	0.3160
Basal foliage*Fungicide	32	9.15	0.0049	16	3.85	0.0674
Cover crop*Basal Foliage*Fungicide	32	0.00	0.9884	16	0.93	0.3504
2011						
Cover crop	8.284	4.91	<b>0.0564</b>	30	5.61	<b>0.0245</b>
Basal foliage	7.897	0.24	0.6397	30	4.62	<b>0.0397</b>
Cover crop*Basal foliage	7.897	0.27	0.6204	30	7.98	<b>0.0083</b>
Fungicide	15	0.06	0.8046	30	0.66	0.4238
Cover crop*Fungicide	15	0.95	0.3461	30	0.17	0.6818
Basal foliage*Fungicide	15	3.24	0.0922	30	1.46	0.2365
Cover crop*Basal Foliage*Fungicide	15	0.01	0.9414	30	0.16	0.6886



**Pictures of one of the Research Plots in a Commercial Yard in Oregon**



Bare soil between rows and removal of basal foliage



Cover cropping between rows and limited or no removal of basal foliage

***Objective 2. Conduct targeted marketing and outreach with U.S. brewers that currently utilize imported hops.***

The first task that the Oregon Hop Commission performed for this task was to write a RFP and take proposals so that we could hire a professional firm to help us with the marketing portion of this project. We awarded the contract to Bryant Christie, Inc, who also does extensive work with the hop growers of America and many other U.S. commodity organizations.

In order to better establish a defined target for our marketing efforts, we completed extensive research on the hop usage of the 50 largest US craft breweries. Through online research and conversations with brewing and hop industry experts, we narrowed down the top 50 breweries to a list of 30 targets (appendix A). These 30 targets represent breweries that use a significant portion of European hops in their recipes.

In the original proposal we had planned to participate in the Craft Brewers Conference in 2010 and do the hop tour portion of this project in the summer of 2011. After discussions with the growers, commissioners and Bryant Christie we decided that it would be a better use of our time and money to do the seminar at the 2011 Craft Brewers Conference and hold the Craft Brewer U.S. hop tour during the summer of 2011.

Before starting the recruiting process and the development of marketing materials, it has been important to establish the strategy and objectives that the OHC wants to accomplish through these efforts. This effort has involved BCI meeting with members from the boards of the OHC, the Washington Hop Commission, and the Hop Growers of America. BCI also held conversations with hop and brewing industry experts such as Matt Brynildson (Brewmaster of Firestone Walker Brewing Co.), Ralph Olson (owner and former GM of Hopunion CBS LLC), Gayle Goschie (owner of Goschie Farms Inc.), Val Peacock (President of Hop Solutions Inc. and former Hop Technology Manager at Anheuser Busch), Tom Shellhammer (Professor of Fermentation Science, Oregon State University), and Karl Ockert (Technical Director of the Master Brewers Association of America).

On September 28, 2010, BCI submitted an application on the OHC's behalf to be included as one of the official presenters at the CBC (**appendix B**). The BA notified BCI in late October that the OHC was indeed selected to be one of the CBC presenters (from over 100 different proposals). This was a huge accomplishment as being included in the BA schedule meant that we would have many less expenses in this category than we had originally planned for. When we budgeted for the seminar expenses we included room rental and other expenses because there are many seminar organizations that don't make the cut to be included in the official Craft Brewers Conference schedule. The BA's selection committee, however, requested some changes be made to the OHC proposal. Here below is an excerpt from an email from Paul Gatza (BA Director) that requests changes to the OHC's original proposal:

“The parts of the proposal that did not resonate with the subcommittee are related to the

marketing potential of “locally grown” or “American grown” or issues related to environmental sustainability, except perhaps where there are processing, warehousing or shipping cost differences between American and foreign hops based on industry averages. The panel should consider that the vast majority of attendees for this presentation will be brewhouse, cellar, brewery ops and quality staff, rather than beer marketers.”

Based on these comments, BCI, in coordination with the OHC, sent a revised proposal to the BA. The new seminar outline was changed to the following:

- I. Welcome and brief overview of the presentation themes/objectives
- II. Introduction of panelists
- III. US substitutes for commonly used European hop varieties
  - a. Past, present, and future of breeding and/or growing European noble-style varieties in the US
    - i. What was and is the motivation for this effort?
    - ii. How has this succeeded?
    - iii. How has this failed?
    - iv. What are the challenges?
    - v. How could this effort be strengthened?
    - vi. Should it even be strengthened?
    - vii. What are the marketing prospects domestically and internationally for these varieties?
  - b. Substituting hop varieties
    - i. Common substitutes
      1. Case studies
      2. Pilot-brew trials
    - ii. Less common, but still effective substitutes:
      1. Case studies
      2. Pilot-brew trials
    - iii. What are the challenges and opportunities for growers, merchants, and brewers in advancing this effort?
- IV. Ideas for creating a sustainable US hop market for growers, dealers, and brewers
  - a. Perspectives from:
    - i. Growers
    - ii. Dealers
    - iii. Brewers
  - b. Ideas for improving communication between brewers and growers on harvest time decisions
- V. Final audience questions and closing

The BA approved this revised version, believing it to be of more value to the craft brewers that will be attending the CBC. While the OHC was hoping to include a section on the hop

industry's sustainability and local appeal, we will still be able to communicate these ideas through the other aspects of this project (i.e. marketing materials and the hop tour).

A primary component of the OHC seminar is the pilot brew trials that highlight U.S. hop varieties as potential substitutes for commonly used European varieties. Although our original plan was to use Oregon State University's Fermentation Science department to conduct the pilot brews, in talking with brewery contacts such as Sierra Nevada Brewing Co., they suggested that we use actual operating breweries to run the trials. Sierra Nevada volunteered to run the trials and also recommended two other breweries that are more known for lager beer styles—a particular target segment of the OHC seminar. The two other breweries that were recommended to us were New Glarus Brewing Co. and Moonlight Brewing Co. Both New Glarus and Moonlight accepted our offer to be panelists and pilot brewers for the seminar. Since there brewers all volunteered their time and supplies, except for the hops, our expenses for the trial brew category of our budget were much lower than originally anticipated.

The OHC Craft Brewers Conference seminar panel:

- Matt Brynildson Brewmaster, Firestone Walker Brewing Co. (Moderator)
- Val Peacock President, Hop Solutions Inc. (Lead Presenter)
- Blake Crosby Grower/Owner, B. Crosby Hop Farm (OR Grower Rep)
- Darren Gamache Grower/Owner, Virgil Gamache Farms (WA Grower Rep)
- Brian Hunt Brewer/Owner, Moonlight Brewing Co. (Pilot Brewer)
- Tom Nielsen R&D, Sierra Nevada Brewing Co. (Pilot Brewer)
- Scott Jennings Brewer, Sierra Nevada Brewing Co. (Pilot Brewer)
- Dan Carey Brewer/Owner, New Glarus Brewing Co. (Pilot Brewer)

Nancy Frketich, Administrator of the OHC, will provide the opening welcome and introduction. All of the panelists besides Dr. Peacock, will be volunteering their time to this OHC effort.

BCI worked with many of the selected panelists, as well as various other brewing and hop industry contacts, to help refine the OHC seminar strategy. The following is a summary of the objectives and strategy:

What is the objective and who is the target?

The objective of the OHC's seminar at the CBC is to educate U.S. craft brewers on the wide spectrum of American hop varieties, and to ensure that brewers are aware of U.S. substitution possibilities for European hops in lager/pilsner style beers. The primary targets of this event will be U.S. craft brewers that have a lager or pilsner flagship beer, or craft brewers that simply use a higher percentage of European hops compared to the industry average.

The goal of this seminar is not to claim that American hops are better than European hops, or that U.S. brewers should use only American hops. Rather, it is meant to be a collaborative effort between the U.S. hop and craft brewing industries to increase knowledge of lesser known American varieties (and the use of these varieties in beer styles that are more commonly brewed with European hops).

### Hop Varieties

For the European hops, the brewers will be using varieties such as Perle, Saaz, Spalter, Styrian Golding, Tettnang, Hersbrucker, Hallertau Mf, and Hallertau Tradition. For the American varieties, BCI has recommended Crystal, Glacier, Horizon, Liberty, Mt. Hood, Palisade, Santiam, Sterling, and Vanguard. Many of these U.S. varieties were bred to be replacement options for European noble varieties, but they have had only limited success (the history of this success, or lack thereof, will be part of the discussion at the seminar). The brewers will also consider experimenting with Cascade, Willamette, and Nugget since these are the three largest varieties, by acreage, grown in Oregon.

March 2010 was the most intensive month due to the culmination of the OHC seminar at the Craft Brewers Conference on March 25. The activities performed prior to the conference included:

- Meetings at the American Hop Convention with project collaborators (Nancy Frketch, Fred Geschwill, Blake Crosby, Darren Gamache, Val Peacock, Matt Brynildson, Tom Nielsen, and Dan Carey)
- Numerous phone calls with hop and brewing industry contacts to brainstorm strategy and to define brewery targets;
- Management of the three breweries (Sierra Nevada, New Glarus, and Moonlight) that served as the pilot brewers for the presentation trial beers;
- Procurement and shipping of hop samples to Sierra Nevada and New Glarus for use in trial beers;
- Coordination with the OHC on defining presentation topics
- Oversight of Val Peacock's work on the presentation, including multiple rounds of edits, revisions, and additions;
- Production of the USA Hops Variety Manual; **(See Attachment 1 for the final PDF of the Manual)**
- Designed and Printed business cards for our grower representatives on the panel; **(See attachment 2 for an example)**
- Obtaining contact information for over 350 U.S. breweries with production capacity above 4,000 barrels per year;
- Drafting of e-invitation that was sent out to owners, brewers, hop purchasers, and R&D staff from over 350 of the largest craft brewers in the U.S.;
- Communication with the event planning staff at the Brewers Association to arrange

seminar logistics (room arrangement, time allocation, presentation schedule, beer service, etc.);

- Travel to San Francisco between March 24 and March 27 to attend the CBC on behalf of the OHC (this included leading a meeting with panelists prior to the presentation, setting up the seminar room, serving beer during the presentation, etc.).

The seminar at the CBC was very successful. It attracted approximately 450 attendees, nearly all of whom worked for U.S. craft breweries in some capacity. Stretching nearly 90 minutes, the seminar included a discussion on:

- Current hop usage patterns of the U.S. craft beer industry;
- The history of American hybrids of classical European aroma varieties;
- A new look at using US-grown varieties in recipes that more traditionally call for European-grown hops;
- Suggestions for improving communication between craft brewers and the US hop industry.

Each seminar attendee also received a copy of the USA Hops Variety Manual, which was produced especially for this project. The Variety Manual features 41 hop varieties that are currently being grown in Oregon, Washington, and Idaho, comprising approximately 99% of commercially available acreage.

#### **Photos from the Craft Brewers Conference Seminar:**



Below is a description of each of the trial beers that were specially brewed for the OHC seminar:

#### Moonlight Brewing Co.

“Reality Czeck Pils”—U.S. Perle vs. Czech Saaz

Moonlight took its commercially available “Reality Czech Pils” and compared one version brewed with the Saaz hops from the Czech Republic and another version brewed with the Perle

variety grown in the U.S.

- The Saaz had a subtlety and flavor of beers in Czech Republic
- U.S. craft consumers require a bit more vibrancy, which the Saaz couldn't provide—which made Perle a perfect fit
- The subtlety and cleanness of Czech style maintained with U.S. Perle

Both beers tasted great and the Perle-hopped beer was able to maintain the subtlety and cleanness for which Saaz hops are so famous. This proved to the attendees that this style of beer, which is usually brewed with European hops, can also be brewed with U.S.-grown varieties.

#### New Glarus Brewing Co.

“Two Women Lager”—German Hallertau MF vs. Oregon Cascade, Mt. Hood, and Willamette

“Two Women Lager” is an Amber Lager that was recently released by New Glarus. It is normally brewed with the German variety, Hallertau MF, aiming for good drinkability and robust shelf life. Hallertau MF is perhaps the most classic of all European-style lager hops. Replacing Hallertau MF with the three most classic Oregon varieties exemplified the remarkable versatility of these American hops. As noted by New Glarus' brewer/owner, Dan Carey, “there is not a huge difference between my [original recipe that uses] Hallertau and the Oregon [hopped] Brews.”

#### Sierra Nevada Brewing Co.

Base beer: Non-commercial Pale Ale

Trial #1: “Torpedo” dry-hopped with Oregon Crystal

Trial #2: “Torpedo” dry-hopped with German Hallertau MF

Aside from the different hop varieties used, the recipes and brewing process were exactly the same for both beers. The purpose of Sierra's trial was to show how Crystal, a Hallertau MF hybrid variety developed by USDA, can provide attributes of its Hallertau MF parent while also providing a “U.S. Craft interpretation” of a classic European beer style. In this particular brew, Sierra Nevada's analysis showed that the Crystal and Hallertau MF were very similar in their aroma attributes, except for a strong citrus quality that was exhibited in this beer.

After the conclusion of the successful seminar our attention turned to planning the U.S. hop tour for targeted U.S. craft brewers. After picking the tour dates, the first step was to do some market research on the craft beer sector to determine appropriate brewery candidates for the pre-harvest tour that would meet the objectives of the project (i.e. craft breweries that use a higher amount of European hops compared to the average US craft brewery). We narrowed down the list of potential breweries by evaluating beer styles and geographic proximity to the US hop growing region. We then contacted a number of craft beer industry observers and participants, as well as the three leading American hop merchants that sell to the craft beer sector (Hopunion, Steiner, and Brewers Supply), to come up with the following list of the 20 best brewery targets based on

OHC's objective:

<b>Brewery Name</b>	<b>Brewery Location</b>	<b>Brewery Contact</b>
1. Abita Brewing Co.	Abita Springs, LA	Mark Wilson
2. Big Sky Brewing Co.	Missoula, MT	Matt Long
3. BJ's Restaurant and Brewery	Huntington Beach, CA	Alex Puchner
4. Boston Beer Co.	Boston, MA	David Grinnell
5. Boulevard Brewing Co.	Kansas City, MO	Steven Pauwels
6. Gordon Biersch Brewing Co.	San Jose, CA	Justin Boehle
7. Great Lakes Brewing Co.	Cleveland, OH	Mark Hunger
8. Harpoon Brewery	Boston, MA	Al Marzi
9. Karl Strauss Brewing Co.	San Diego, CA	Paul Segura
10. Matt Brewing Co.	Utica, NY	Jim Kuhr
11. Red Rock Brewing Co.	Salt Lake City, UT	Kevin Templin
12. Shipyard Brewery	Portland, ME	Alan Pugsley
13. Smoky Mountain Brewery	Knoxville, TN	Marty Velas
14. Spoetzl Brewery (Gambrinus Co.)	Shiner, TX	Jim Hackbarth
15. Summit Brewing Co. Thomasser	Saint Paul, MN	Tom
16. The Brooklyn Brewery	Brooklyn, NY	Garrett Oliver
17. The Saint Louis Brewery	St. Louis, MO	Dan Kopman
18. Trumer Brauerei	Berkeley, CA	Jeff Eaton
19. Victory Brewing Co.	Downingtown, PA	Scott Dietrich
20. Yuengling Brewery	Pottsville, PA	John Callahan

We then contacted each of these breweries to invite them on the tour. An invitation was designed and sent to each person on this list (**Attachment 3**). We also called each prospective attendee to introduce ourselves and the OHC tour/objectives. Due to vacations and the busy summer brewing season, it was necessary to contact all 20 breweries in order to obtain the attendance of the seven eventual brewery guests. In total, we confirmed the following seven brewery representatives from six different companies:

<b>Invitee</b>	<b>Job Title (Brewery Name)</b>
1. Rebecca Newman	Brewing Quality Assurance (Boston Beer Co.)
2. Mark Hunger	Manager of Brewing & Quality Control (Great Lakes Brewery)
3. Jim Hackbarth	Manager of Brewing Development (Gambrinus Co.)
4. Gary Briggs	Sales & Marketing (The Saint Louis Brewery)
5. Nick Vickery	Sales & Marketing (The Saint Louis Brewery)
6. Jeff Eaton	Lead Brewer / Quality Assurance Analyst (Trumer Brauerei)
7. John Callahan	Lead Brewer (Yuengling Brewery)

We were very pleased with the breweries that accepted our offer. Boston Beer is by far the largest craft brewery in the US and uses predominantly European hops (making it the top target based on the project criteria). In many ways, Boston Beer was the impetus for this project, which made their attendance a success in and of itself.

Yuengling Brewery, while not considered a craft brewery by some in the industry, brews “craft-like” beer and is the fourth largest brewery in the US, following Anheuser-Busch, MillerCoors, and Pabst. Yuengling brews approximately two million barrels of beer per year (Boston Beer brews just under two million barrels). It was the first time John Callahan, Yuengling’s Lead Brewer, and therefore one of the largest hop buyers in the country, had ever visited the hop growing region. His brewery currently uses just two American hop varieties (Cascade and Cluster). This trip allowed him to be introduced to many new varieties with which Yuengling could expand their American hop portfolio.

The Gambrinus brewing group, which includes Spoetzl Brewery (Shiner, TX), BridgePort Brewery (Portland, OR), and Trumer Brauerei (Berkeley, CA), is the fourth largest craft brewing entity in the US, and the ninth largest brewery overall. In addition to Gambrinus’s Jim Hackbarth, who oversees hop purchasing for Spoetzl and BridgePort, the lead brewer from Trumer Brauerei also attended the tour. Spoetzl uses about 50% imported hops (well above the industry average), and Trumer uses 100% European hops, which makes both of these breweries very important targets for the Oregon and Washington hop industries.

The Saint Louis Brewery, which sent two representatives, imports 40% of their hops, making it a perfect fit for the objectives of the tour.

We had several industry partners that helped us with the schedule for the Craft Brewers Hop Tour. The tour took place July 25 – 28<sup>th</sup> and we started in the Washington hop growing region and then traveled to Oregon on July 27 stopping at Full Sail brewery for a tour and lunch along the way. We also planned the tour so that we could attend the Oregon Brewers Festival Brewers Dinner with the tour members. This added a little extra incentive for participants to attend the tour. Other tour collaborators included S.S. Steiner, Stuaffer Farms, David Gent, USDA; Rogue Farms, Roy Farms, Brewers Supply Group, Hopunion and BT Loftus Ranches. Please see **Appendix C** for the final schedule of the US Craft Brewer Hop Tour.

For marketing materials for the tour, we put together binders for each of the guests that contained a schedule of the week, marketing materials (including the hop variety manual produced in first phase of the project), and hop industry statistics.

In the last phase of the project we sent out a survey to the brewers that attended the tour to get their feedback on how they think the tour went and if they are now using more US hops after the tour. As you can see from the responses in **Appendix D** there are a few brewers that are going to

try substituting some of their European Hops for US hops or plan to make a new type of beer using US hops. I have not heard back from Boston Beer on the survey but I do know that they brought some of their brewery members to the Oregon and Washington growing regions for a post harvest tour in September of 2011.

2011 Craft Brewer Tour Photo's:



Dr. David Gent Presenting to the Group  
Hubbard



Tour of John I Haas Warehouse in



Tour of Roy Farms, Yakima, WA



Dwarf Hops at Roy Farms, Yakima, WA



Tour Group at Stauffer Farms, Hubbard, OR  
Brewing



Tour, Lunch and Beer tasting at Full Sail  
Brewing

***Objective 3. Engage producers and extend results through established public-private partnerships.***

Producers and other stakeholders of this research were involved with multiple aspects of this project and research to accelerate technology transfer and impacts of the research. These efforts began during autumn 2009, when Dr. David Gent met with both the Washington and Oregon hop commissions to plan and establish guidelines for cooperative growers in both states. The commission office sent out a notice to all growers with details about this project, and three to four grower cooperators were identified in each state for trials in 2010 and 2011.

During winter 2010 (February 11 2010), the Oregon Hop Commission hosted a Hop Disease Management and Food Alliance Certification Workshop. This workshop gave growers an introduction to the Food Alliance Certification Program. It also covered Disease Management and Integrated Pest Management techniques (**See Appendix E for Seminar Agenda**) A similar meeting was held the following month (March 25 2010) to introduce the Salmon Safe Certification Program to growers. At the April 13, 2010 Washington Hop Commission regular meeting a presentation was given on Salmon Safe, Inc. With these three workshops we introduced many of the Oregon and Washington hop growers to two of the largest third party sustainable certifiers in Pacific Northwestern U.S.

Presentations and workshops were held regularly to transfer research results and information to industry stakeholders. These included the following:

- A presentation on tactics to improve conservation biological control of spider mites made at the 69<sup>th</sup> Annual Pacific Northwest Insect Management Conference (January 11 2010)
- A seminar to EPA representatives on hop production and IPM (February 18 2010)
- Presentations on disease management and conservation biological control (11 March 2010)
- A seminar to Sierra Nevada Brewing, Inc. on best management practices (May 19 2010)

- An emergency downy mildew control workshop (May 25 2010)
- A field day on natural enemy sampling and identification (June 17 2010)
- A powdery mildew management workshop at one of the growers plots in 2010 (June 24 2010)
- A presentation to craft brewers on sustainable pest management at one of the research demonstration sites (August 13 2010)
- A presentation on 2010 research results and best management practices for downy mildew to Oregon Hop Commission (February 17 2011)
- A workshop on farm-scaping for natural enemy management at the research sites of a cooperating grower in Oregon (July 20 2011)
- A presentation on IPM and best management practices to craft brewers at the research plots of a cooperating grower in Oregon (July 27 2011)
- Research updates (and annual written reports) to the Hop Research Council at their summer and winter meetings (January 21 2010, August 3, 2010, January 20 2011, and August 2 2011)

In addition to these formal presentations and workshops, Dr. Gent provided numerous one-on-one consultations with growers throughout the Pacific Northwest on best management practices and IPM tactics in hops during the course of this project. He also provided expert opinions and input to Salmon Safe, Inc. to support modification of its best management practice requirements for hops.

Since this was a regional project we had many significant contributions to all three sections of this project from many project partners. As you can see by reading through this report many of these contributions are outlined in the activities performed on each project. The Washington Hop Commission, Hop Growers of America and U.S. Hop Industry Protection Program provided both in kind and cash matching funds for this project. Cooperative growers in Oregon and Washington all contributed greatly with donations of land, equipment, labor and time for the IPM portion of this project. Also the breweries that donated their time and equipment to make the trail beers and sit on the seminar panel are listed above in the project description.

## **GOALS AND OUTCOMES ACHIEVED**

### **Performance Measures for Objective 2 included: (1) Brewer participation in marketing activities at the Craft Brewers Conference and (2) Brewer trialing with and utilization of U.S. hops**

All of the activities that were completed in order to achieve these measurable outcomes are listed above where I described each detail of the project. Some of the major activities were:

- Email sent out to breweries attending the Craft Brewers Conference to advertise our seminar

- Listing our seminar subject and panelists in the Craft Brewers Conference official program
- Contacting our target breweries to personally invite them to the seminar
- For the seminar we had three commercial craft breweries participate by brewing one trial beer with US hops and one with European hops so the audience could compare and taste different US hops in different styles of beers.
- Based on survey information that I have received back from the craft brewers that attended the hop tour there are a few that have started utilizing more US hops or plan on using more US hops in the future.

**Goal: At least 15 U.S. craft breweries will attend our seminar at the Craft Brewers Conference.**

**Accomplishment:** First we were very lucky to have been selected to be a part of the seminar schedule at the Craft Brewers Conference. Out of 100 applications for around 40 seminar position we were chosen to present. We had over 450 people attend our seminar at the Craft Brewers Conference. According to the Brewers Association, it was one of the most attended seminars of the 2011 conference.

**Goal: Representatives from at least five breweries that currently use more European hops than American hops will attend one of our tours of the U.S. hop growing area.**

**Accomplishment:** The brewery representatives listed below attended our US craft brewer hop tour in July of 2011. Each of these breweries currently uses more European Hops than American hops in their flagship beers.

Rebecca Newman	Brewing Quality Assurance (Boston Beer Co.)
Jim Hackbarth	Manager of Brewing Development (Gambrinus Co.)
Gary Briggs	Sales & Marketing (The Saint Louis Brewery)
Nick Vickery	Sales & Marketing (The Saint Louis Brewery)
Jeff Eaton	Lead Brewer / Quality Assurance Analyst (Trumer Brauerei)
John Callahan	Lead Brewer (Yuengling Brewery)

**Goal: At least three breweries targeted in this marketing campaign will begin using an American hop variety that they had previously never used.**

**Accomplishment:** I have heard from Gambrinus, Boston and Yuengling that they are beginning to use a new US hop in one of more of their different beers.

**Goal: At least two targeted breweries will implement an American variety in one of their recipes that formerly called for a European variety (this can be on a pilot scale or commercial scale).**

**Accomplishment:** Gambrinus requested Centennial and Chinook varieties to do a pilot brew with these American hops to compare it to their beer made with European hops. Boston Beer has

not responded by email but in having numerous conversations with their brewery representatives they are blending in more US hop varieties into certain beers.

**Performance Measures for Objectives 1 & 3 included: To increase producer participation in IPM/sustainable certification programs; and increase grower awareness and adoption of IPM.**

Our goal with this project was to increase mean scores for awareness and adoption of IPM by growers by at least 10% from the current baseline rating of 4.6 to 6.6 on a 7-point scale as determined from a 2009 pre-survey.

**Measurable Outcomes - IPM Awareness and Adoption.** A pre-survey on awareness of IPM principles and adoption of IPM tactics was developed and approved by the Oregon State University Institution Review Board for human subjects in 2009. The survey asked questions of IPM principles and tactics, such as pest monitoring, record keeping, awareness and use of thresholds, awareness of the side effects of pesticides on non-target organisms, factors affecting pesticide selection, pesticide use practices, and evaluation of treatment effectiveness.

Mailings to all hop growers in Oregon, Washington, and Idaho began in December 2009. After at least three follow-up correspondences (email and phone) with non-respondents, the pre-survey was deemed complete: the response rate was 62%. The results were tabulated and presented to industry stakeholders at a semi-annual grower meeting.

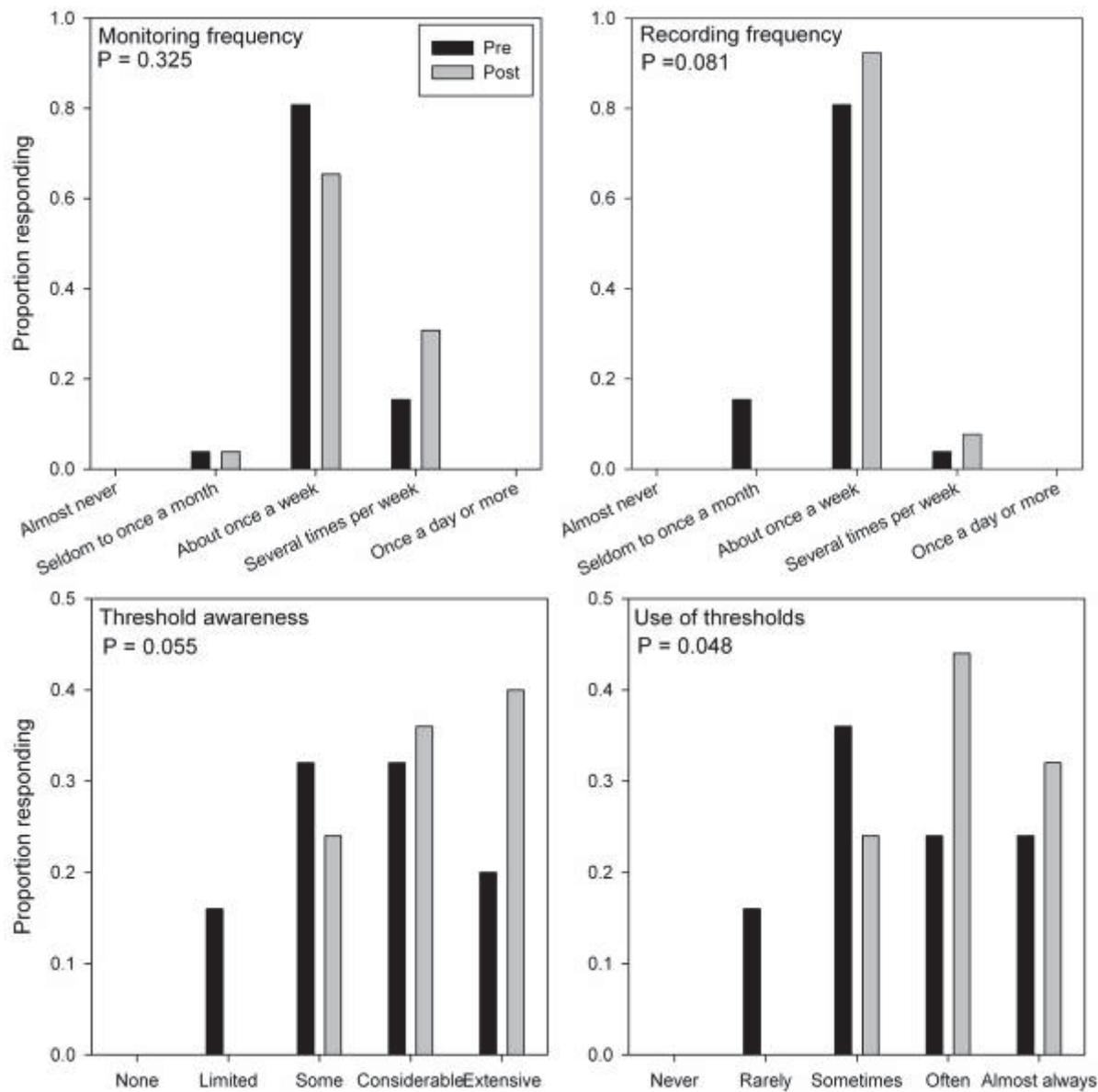
An evaluation specialist was consulted for advice on development of a post-survey and collection of grower demographic data for final statistical analysis. An electronic post-survey was developed and pre-tested on growers before final dissemination in autumn 2010. After at least three follow-up correspondences (email and phone) with non-respondents, the post-survey was deemed complete: the response rate was 48%.

Statistical analysis of the post-survey data was conducted. Chi-square tests of independence (corrected for small sample sizes) were conducted to evaluate changes in awareness and adoption of the IPM principles and tactics and pesticide (Figures 3 and 4). Respondents reported significantly greater awareness of thresholds ( $P = 0.055$ ) and awareness of the side effects of pesticides on non-target organisms ( $P = 0.00021$ ). Respondents also reported that they now make greater use of thresholds ( $P = 0.048$ ) and that their selection of pesticides is more strongly influenced by their effects on non-target organisms ( $P = 0.0028$ ). Sampling intensity ( $P=0.325$ ), record keeping ( $P = 0.081$ ), and evaluation of treatment effectiveness ( $P = 0.172$ ) were not significantly different.

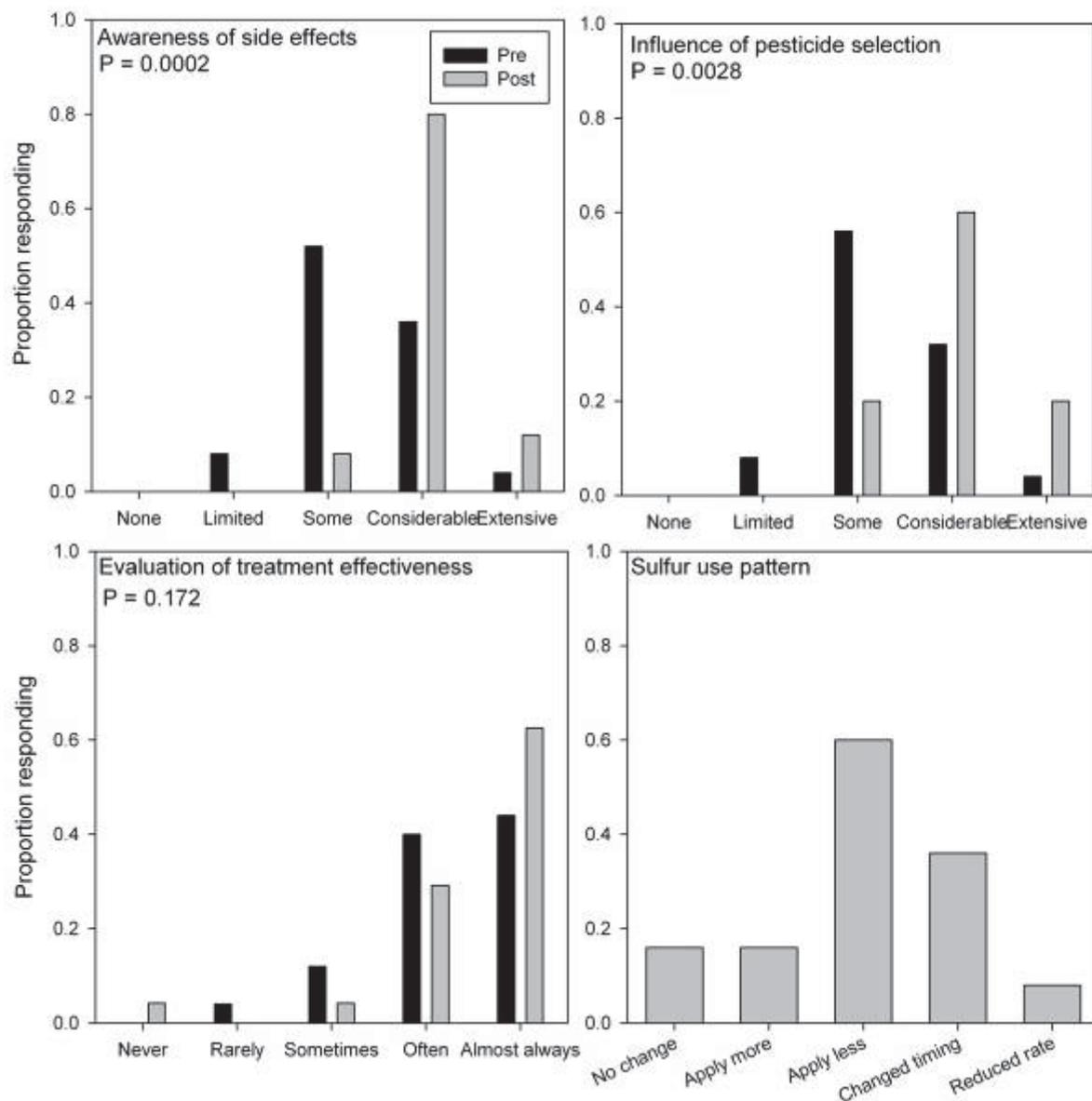
Among respondents, 68% indicated that their use of sulfur had been modified in some way compared to their practices more than 2 years ago. Sixty percent of growers reported applying sulfur less often, 36% changed the time of year when sulfur was applied, and 8% reduced rates. Respondents in the pre-survey indicated they made 1.99 miticide applications per yard on average, whereas average miticide use was reported as 1.76 applications per yard in the post-

survey (one-sided t-test  $P = 0.075$ ). Insecticide use was unchanged (1.99 applications pre versus 2.00 applications in post-survey; one-sided t-test  $P = 0.49$ ).

IPM plans have been developed by 80.8% of growers, and 60% of growers discuss IPM at least once a week with other growers, farm advisors, researchers, or extension agents. Ninety-four percent of growers also reported that they have implemented at least some level of conservation of beneficial organisms on their farm; 68% have implemented 'considerable' or 'extensive' measures to conserve beneficial organisms.



**Figure 3.** Changes in hop grower awareness and use of IPM principles before (Pre) and after (Post) the beginning of this project in 2009. The probability values noted on each figure are from a one-sided exact Chi square test of independence. Data are from a simple random probability survey of all hop growers in Oregon, Washington, and Idaho conducted during 8 October to 6 December 2010. There was a 47% response rate from the 66 farms surveyed.



**Figure 4.** Changes in hop grower awareness and use of IPM principles before (Pre) and after (Post) the beginning of this project in 2009. The probability values noted on each figure are from a one-sided exact Chi square test of independence. Data are from a simple random probability survey of all hop growers in Oregon, Washington, and Idaho conducted during 8 October to 6 December 2010. There was a 47% response rate from the 66 farms surveyed

## **BENEFICIARIES**

U.S. hop imports ranged between 27.6 to 38.6 million pounds per year from 2003 to 2008 (George, 2008), valued at an estimated \$49.7 to \$115.1 million based on average market prices during this period. Greater utilization of U.S. hops by domestic breweries through this project could create new economic opportunities valued at up to an estimated \$115.1 million for the 87 hop producers in the Pacific Northwestern U.S. and the rural communities they support.

Additionally, U.S. hop exports ranged between 49.2 to 66.5 million pounds annually during 2003 to 2008. The current proposal requested funds for activities directed at domestic markets. However, greater grower participant in sustainable or IPM certification schemes could create new international marketing opportunities as well.

The potential impact of this project also includes some value associated with reduced production inputs and enhanced grower adoption of sustainable production practices. Our studies were conducted in both Oregon and Washington, and the collaborating scientist, Dr. David Gent, USDA-ARS, had responsibilities for hop research and technology transfer for all production regions in Washington, Oregon, and Idaho. The IPM strategies and concepts developed in this study are accessible and extended to all U.S. hop growers. Additionally, we will identify IPM strategies and principles that enhance integration of disease and arthropod pest management that should be applicable to many perennial crops.

## **LESSONS LEARNED**

### ***Objective # 1 Establish on-farm research to quantify and document the value of IPM approaches for priority pests and diseases***

While objective #1 did not have any real problems or delays the research conducted in the plots from 2010 was somewhat inconclusive because of the very wet weather conditions. The scientist team did find some advantages with some of the IPM tests that were run last year but they weren't very significant. Combining the research from 2010 and 2011 gave them some more conclusive theories on the IPM trials they ran.

### ***Objective # 2 Conduct targeted marketing and outreach with U.S. brewers that currently utilize imported hops.***

In talking with many US craft brewer during the course of this project it had been reiterated to us many times that this project is “preaching to the choir.” U.S. craft brewers, by in large, are hop enthusiasts and are very educated on American hop varieties. Indeed, the distinguishing aromas from U.S. varieties such as Cascade, Centennial, and Chinook were central to the beer styles that helped launch the “craft beer revolution” over the last quarter century. One Oregon brewer, for example, shared with me that his brewery uses 99.5% American hops and is “moving toward 75% Oregon grown.” However, this varies by geographic region and depends on the beer style that is brewed. Especially on the west coast, the hoppy IPA that is so popular relies heavily on American hop varieties, but there is a definite group of craft brewers that use European hops for

lager style beers. Then there are the brewers who use European hops as a foundation for their brewing philosophy and marketing (i.e. Boston Beer Co. and Trumer).

It was more difficult than expected to integrate Dr. Gent's sustainability research with the marketing seminar at the CBC. The BA, unfortunately, did not want to include the discussion on sustainable hop farming as part of the seminar. However we did integrate Dr. Gent's IPM research to the brewers that attended the craft brewer tour in July of 2011 and they were very interested and responsive to the work. They appreciated that his work will help the growers to adopt more sustainable practices along with saving the growers time and money.

While the final result of the seminar and Variety Manual yielded positive results and were very well received by the CBC audience, there were a couple problems encountered. The quality of Dr. Val Peacock's first presentation drafts was a little below expected standards and it took him a little while to really understand the project's strategy and goals. After multiple rounds of edits and input from BCI and the OHC, the presentation did finally reach an acceptable level of quality.

The other problem was logistical. Due to the size of the expected audience, the BA was not able to accommodate our request to have classroom seating in the conference room where the seminar was to be held. The original vision was to set up beer and hop samples on tables prior to the start of the presentation, allowing the attendees to serve themselves when cued. Since this was not possible, the six different beer samples had to be poured and distributed to over 400 attendees during the presentation.

Pouring and serving six different beer samples to 450 people in a limited amount of time, in the middle of a presentation, is a difficult task. The challenge, however, was a good one to have considering it was due to such a large audience. The OHC, BCI, and the BA organized 10 people from their respective staffs to help serve the beer. While it was not as smooth as it would have been with pre-set tables, the planning paid off and the six beer samples were successfully distributed within the 30 minute tasting portion of the presentation. Unfortunately, this setup precluded distributing hop samples for sensory analysis along with the beer tasting. There was simply not enough space or time to include hop samples in addition to the beer samples. Showcasing the hops in the beer, however, was the most important objective, and was conducted successfully.

For the Craft Brewers US hop Tour the most difficulty encountered was in the recruiting phase. Given the summer vacation schedule of many of our targets, combined with the fact that breweries are typically busier in the summer due to heightened production, many of the brewers that we invited were not able to attend. We also had one last minute cancellation. In the end, it worked out fine since the budget could only accommodate seven or eight participants. However, we would have liked to have had one more participant and would generally have rather had two breweries represented in place of inviting two people from The Saint Louis Brewery (it should

be noted, however, that The Saint Louis Brewery paid for their own airfare since they sent two people). We contacted all of 20 of the people on the target list that was developed. Nearly all of those contacted had great interest in attending, but many of them had scheduling conflicts. Many of them asked that we invite them next year should the hop industry do another tour for craft brewers. This indicates that there is a strong market for these kinds of educational ventures.

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**S20 TITLE: Promotion of Fresh Market and Chipping Potatoes in Southeast Asia with the Oregon Potato Commission – *Final Report (Approved 1/27/11)***

**Contact: Bill Brewer, Oregon Potato Commission**

**Phone: 503-731-3300**

**Email: [brewer@oregonspuds.com](mailto:brewer@oregonspuds.com)**

**PROJECT SUMMARY**

Several new or different potato varieties are being produced by Pacific North West (PNW) grower's that had not been demonstrated to the S.E. Asian market. The S.E Asian dining industry has undergone many changes in recent years. Western cuisines are growing in popularity with many international restaurateurs. PNW potato varieties and method were demonstrated on how they fit into this changing market.

Preliminary results from an Oregon Potato Commission (OPC) funded "Potato Variety Acceptance" project conducted at the Oregon State University Food Innovation Center indicated new potato varieties were regarded as 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 in S.E. Asia along with introduction of the product.

This project complimented a FY-2008 grant ODA-2366-GR that OPC utilized on the same international travel to Taiwan. By combining the two projects airfare was minimized and total time needed to complete both projects was decreased.

**PROJECT APPROACH**

This project did address the focus area of specialty crop activities that will enhance the competitiveness of the Pacific Northwest (PNW) potato industry. This was accomplished through multi-disciplinary methods involving Brian Charlton, Oregon State University (OSU) Potato Specialist, Leif Eric Benson and Damien Christian, Professional Chefs, Dan Chin and Lon Baley, Oregon Grower/Shippers, Chris Olsen, Washington State Grower, Bill Brewer, OPC Executive Director and Matt Harris, Washington State Potato Commission (WSPC) Trade Director with cooking demonstrations, written materials and power point presentations during seminars.

The overall goal of the project was to develop additional fresh potato sales volume to S.E. Asia. The project had several components: (a) enhancement of PNW table-stock potato market share; and (b) promotion of PNW chipping potato varieties. The Manila project utilized Chef Benson in potato dish demonstration of new potato uses while Chef Christian prepared samples in the Hotel kitchen. The second phase of the project utilized one of Oregon's potato variety experts, Brian Charlton, with knowledge of both fresh and chipping potatoes. The chip portion presented

information to chip manufacturers regarding PNW grown chip potato variety characteristics. Newly developed varieties have characteristics such as colder storage temperature without increasing sugars, which darken the chip. Power point presentations and written material was presented to participants on each variety including: characteristics, storage and handling methods. During the Hong Kong project Chef Benson prepared potato samples at three in-store demonstrations. Chef Benson used potato varieties grown in the PNW.

Participants included:

Oregon Department of Agriculture

1. Katy Coba, Director
2. Dalton Hobbs, Assistant Director
3. Jim Cramer, Administrator Commodity Inspection Division
4. Lindsay Benson Eng, Trade Specialist
5. Karla Valness, Office Manager

Washington Department of Agriculture

1. Dan Newhouse, Director
2. Robert Gore, Assistant Director

Washington State Potato Commission

1. Chris Voigt, Executive Director
2. Matt Harris, Trade Director
3. Chris Olsen, Grower

Oregon Potato Commission

1. Bill Brewer, Executive Director
2. Nels Iverson, Grower
3. Lon Baley, Grower
4. Dan Chin, Grower

Program Experts

1. Chef Leif Benson
2. Brian Charlton
3. Chef Damien Christian

Potato Varieties included:

1. Purple Pelisse
2. AmaRosa
3. Colorado Rose
4. Modoc
5. Russet Norkotah
6. Yukon Gold
7. Klamath Pearl

**Below is a description of the project work plan as was outlined in the project description**

**(in bold) as compared to the actual project activities:**

**The potato varieties being used during the proposed mission will be grown, harvested and shipped from the Klamath Falls Research and Experiment Center (KREC), Oregon. All varieties will be field inspected by the Oregon Department of Agriculture (ODA) to be free from Potato Late Blight. The potatoes will be graded and stored at the KREC.**

OPC arranged for several new specialty potato varieties along with others to be grown and certified during the 2009 growing season in order to export the desired varieties. The certification did include Late Blight Field Inspections during the growing season and all Phyto Sanitary requirements needed prior to shipment. The following potato varieties were produced for the mission: Purple Pelisse, AmaRosa, Colorado Rose, Modoc, Russet Norkotah, Yukon Gold and Klamath Pearl. Each of these varieties was grown, harvested, stored, sorted and shipped after all of the needed certifications and inspections occurred. A team consisting of Jim Cramer, Lindsay Benson, Karla Valness (ODA) and Bill Brewer (OPC) prepared product to be flown to contractors in destination cities.

**Technical guides will be developed specific to PNW potato being demonstrated that will include recipes and characteristics. The guides will be developed in English then translated into complex Chinese for the Hong Kong and Macau market. The guides will include directories of Oregon shippers and descriptions of potato varieties grown in Oregon. OPC will develop literature with colored photos and recipes of all the demonstration products that will be given to all of the participants of the seminars.**

OPC provided these seven varieties to Chef Benson for consumer testing during the “Timberline Lodge Farmers Brunch” held August 19-25, 2009. Chef Benson used this opportunity to develop new potato dish techniques to be used for the seminars. OPC also used this opportunity to photograph dishes being produced by Chef Benson for a folder that was produced to draw attention to the potato dishes during the trade mission. Seminars that provided technical education, product specifications and applications for potatoes were held in Taipei and Manila. Technical material was provided for the guests at the seminars. The folders and technical information was translated into Chinese and handed out when needed in Macau and Hong Kong.

**Arrangements in each location will be made working through local contractors/consultants with knowledge of the potato industry. These contractors will be identified by working with the United States Potato Board (USPB) International Trade Director, John Toasperm and Department of Agriculture offices in Oregon and Washington.**

The USPB provided contact information for Taiwan, but they were unable to help in the other countries, because of International Board Policies. ODA provided contractor information in the Philippines along with the US Agriculture Trade Office (ATO) in Hong Kong and Macau. Seminars were held in Manila and Taipei which provided an opportunity for Oregon/Washington grower/shippers to meet Importers. In-Store promotions were held in Hong Kong at three high

quality markets. The entire delegation had many opportunities to discuss the potato uses and interest.

**A delegation from Oregon and Washington will travel to S.E. Asia in November 2009 to conduct a series of seminars with chip processors, importers and chefs from hotels/restaurants. Attendees of the chip seminars will primarily represent purchasing, management and product development divisions of their companies. Attendees of the table stock seminars will primarily be represented by chefs and purchasing personnel. The seminars will provide a forum for the PNW team members to talk with the key representatives in each location about potato varieties, technical aspects of these varieties and their cooking or processing characteristics, needs of each participant, characteristics desired by importers, storage shipping and handling issues, import concerns, and ways Oregon shippers can work to improve relationships and movement of potatoes to the S.E. Asian market for the benefit of all parties. Each seminar will include menu demonstrations by executive chefs, an overview of current varieties and quality issues by a technical consultant, discussion on handling by export producers, and open dialogue to discuss ways to work together to resolve issues that may be raised.**

This was accomplished through multi-disciplinary methods involving Brian Charlton, Oregon State University (OSU) Potato Specialist, Leif Eric Benson and Damien Christian, Professional Chefs, Dan Chin and Lon Baley, Oregon Grower/Shippers, Chris Olsen, Washington State Grower, Bill Brewer, OPC Executive Director and Matt Harris, Washington State Potato Commission (WSPC) Trade Director with cooking demonstrations, written materials and power point presentations during seminars. The Taipei and Manila stops utilized Chef Benson in potato dish demonstration of new potato techniques while Chef Christian prepared samples in the Hotel kitchen. The second phase of the seminars utilized one of Oregon's potato variety experts, Brian Charlton, with knowledge of both fresh and chipping potatoes. The chip portion presented information to chip manufacturers regarding PNW grown chip potato variety characteristics. Newly developed chip varieties have characteristics such as colder storage temperature without increasing sugars which darken the chip. Power point presentations and written material was presented to participants on each variety including: characteristics, storage and handling methods. During the Hong Kong project Chef Benson prepared potato samples at three in-store demonstrations. Chef Benson used potato varieties grown in the PNW. The Macau stop provided an opportunity to visit Casino/Hotel kitchens at the largest gambling region of the world. One kitchen provided over 6,000 employees plus guests meals each day.

**The Oregon delegation will include potato commission staff, producers/shippers from Oregon, technical expert with extensive potato variety expertise, culinary expert, and representatives of the Oregon Department of Agriculture. This diverse team will prove well versed in nearly all aspects of fresh potato industry. The team will be able to demonstrate and answer a broad spectrum of potato specific questions.**

Participants included:

Oregon Department of Agriculture

6. Katy Coba, Director
7. Dalton Hobbs, Assistant Director
8. Jim Cramer, Administrator Commodity Inspection Division
9. Lindsay Benson, Trade Specialist
10. Karla Valness, Office Manager

Washington Department of Agriculture

3. Dan Newhouse, Director
4. Robert Gore, Assistant Director

Washington State Potato Commission

4. Chris Voigt, Executive Director
5. Matt Harris, Trade Director
6. Chris Olsen, Grower

Oregon Potato Commission

5. Bill Brewer, Executive Director
6. Nels Iverson, Grower
7. Lon Baley, Grower
8. Dan Chin, Grower

Program Experts

4. Chef Leif Benson
5. Brian Charlton
6. Chef Damien Christian

## **GOALS AND OUTCOMES ACHIEVED**

*Goal # 1 - Increase sales of US West Coast fresh table stock and chip potatoes to Philippines and Hong Kong.*

Outcome # 1 –

- Shipping season 2008-2009, Oregon/Washington State shipped 129,513 cwt (table # 1)
- Shipping season 2009-2010, Oregon/Washington State shipped 199,870.5 cwt (table # 2)

*Goal # 2 – Increase awareness of potato varieties grown in US West Coast*

Outcome # 2 – Five of the seven varieties demonstrated in SE Asia were new to the audience.

Activities completed to achieve goals included:

1. Cooking demonstrations by Chef Benson
2. Power point presentations by variety specialist, Brian Charlton
3. Power point presentations by Bill Brewer and Matt Harris discussing high quality of Pacific Northwest product.

4. Growers, Lon Baley, Dan Chin and Chris Olsen answering specific concerns for importers.

## BENEFICIARIES

All of the potato shippers in Oregon and Washington State have been made aware of the potential Philippine and Hong Kong market through local meetings and program updates at the annual WA/OR conference and Newsletters.

Economic impact for Oregon and Washington State: Figures from USDA/FAS See Table # 1 2008-09 Season (Jul-Jun) - \$3,440,000

Economic impact for Oregon and Washington State: Figures from USDA/FAS See Table # 2 2009-10 Season (Jul-Jun) - \$2,452,000

Potential impact of this market could easily increase by 25% when forward contracts are customary. At this time additional sales of chipping potatoes are available, but growers do not have product, because of unknown risks at planting time. Buyers are not willing to forward contract, because they are concerned about paying more than the market value at shipping time. This project helped with relationships that will further the pre-contract process.

**Table # 1**

Philippines 2008-2009 Total United States Fresh Potato Exports

US	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	0	0	241	718.8	0	492	493.6	554.8	0	0	0	44.8	2545
\$1,000	0	0	133	378	0	235	233	275	0	0	0	19	1273
CWT	0	0	5302	15813.6	0	10824	10859.2	12205.6	0	0	0	985.6	55990
\$/CWT	0	0	25.08	23.90	0	21.71	21.46	22.53	0	0	0	19.28	22.73

Philippines 2008-2009 Total Oregon Fresh Potato Exports

OR	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	0	0	520.1	718.8	0	492	493.6	554.8	0	0	0	0	2779.3
\$1,000	0	0	287	378	0	235	233	275	0	0	0	0	1408
CWT	0	0	11441.2	15813.6	0	10824	10859.2	12205.6	0	0	0	0	61143.6
\$/CWT	0	0	25.08	23.90	0	21.71	21.46	22.53	0	0	0	0	24.03

Hong Kong 2008-2009 Total United States Fresh Potato Exports

US	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	221.6	232.3	295.9	327.9	356.4	335	238	305	303.1	164.2	141.6	157.1	3078.1
\$1,000	140	199	184	216	211	198	162	184	186	118	98	114	2010
CWT	4875.2	5110.6	6509.8	7213.8	7840.8	7370	5236	6710	6668.2	3612.4	3115.2	3456.2	67718.2
\$/CWT	28.72	38.94	28.27	29.94	26.91	26.87	30.94	27.42	27.89	32.67	31.46	32.98	29.68

Hong Kong 2008-2009 Total Oregon Fresh Potato Exports

OR	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
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MT	33.2	49	37	91.1	189.2	93.1	70.5	117.7	110.8	0	0	0	828.6
\$1,000	21	42	23	60	112	55	48	71	68				500
CWT	731.3	1078.6	813.7	2003.8	4161.9	2047.2	1551.4	2589.2	2437.8				17414.9
\$/CWT	28.72	38.94	28.27	29.94	26.91	26.87	30.94	27.42	27.89				28.71

Hong Kong 2008-2009 Total Washington State Fresh Potato Exports

WA	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	148.8	156.4	220.3	201.9	167.2	241.9	207.1	210.5	192.3	204.6	174.8	190.2	2316
\$1,000	94	134	137	133	99	143	141	127	118	147	121	138	1532
CWT	3273.3	3441.3	4847	4441.8	3678.9	5322.8	4557.3	4631.4	4230.4	4500.2	3846.3	4183.8	50954.5
\$/CWT	28.72	38.94	28.27	29.94	26.91	26.87	30.94	27.42	27.89	32.67	31.46	32.98	31.31

Table # 2

Philippines 2009-2010 Total United States Fresh Potato Exports

US	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	111.9	258.7	250.1	340.3	316	660.7	680.3	387.7	552.5	288.3	204.1	412.2	4462.8
\$1,000	38	92	83	98	91	219	206	197	276	151	108	216	1775
CWT	2461.8	5691.4	5502.2	7486.6	6952	14535.4	14966.6	8529.4	12155	6342.6	4490.2	9068.4	98181.6
\$/CWT	15.44	16.16	15.08	13.09	13.09	15.07	13.76	23.10	22.71	23.81	24.05	23.82	18.08

Philippines 2009-2010 Total Oregon Fresh Potato Exports

OR	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	0	0	42.2	340.3	316	660.7	680.3	387.7	54	288.3	0	0	2769.5
\$1,000			14	98	91	219	206	197	27	151			1003
CWT			928.1	7486.6	6952	14535.4	14966.6	8529.4	1188	6342.6			60928.7
\$/CWT			15.08	13.09	13.09	15.07	13.76	23.10	22.71	23.81			16.46

Philippines 2009-2010 Total Washington State Fresh Potato Exports

WA	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	0	171.5	207.9	0	0	0	0	0	0	0	0	0	379.4
\$1,000		61	69										130
CWT		3773.6	4574.1										8347.7
\$/CWT		16.16	15.08										15.57

Hong Kong 2009-2010 Total United States Fresh Potato Exports

US	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	156.2	290.5	180.8	269.9	257.4	317.2	238	305	303.1	164.2	141.6	157.1	2781
\$1,000	99	177	101	144	141	141	162	184	186	118	98	114	1806
CWT	3436.4	6391	3977.6	5937.8	5662.8	6978.4	5236	6710	6668.2	3612.4	3115.2	3456.2	55244.4
\$/CWT	28.81	27.7	25.39	24.25	24.9	20.21	30.94	27.42	27.89	32.67	31.46	32.98	32.69

Hong Kong 2009-2010 Total Oregon Fresh Potato Exports

US	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
MT	0	0	0	136.8	36.5	85.5	16.9	51	47.7	73.7	0	0	448.1
\$1,000				73	20	38	8	24	24	37			224
CWT				3010.1	803.2	1880.7	371.9	1122.6	1050.1	1621.5			9860.1
\$/CWT				24.25	24.9	20.21	21.51	21.38	22.85	22.82			22.72

Hong Kong 2009-2010 Total Washington State Fresh Potato Exports

US	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
<b>MT</b>	145.2	249.5	200.5	151.8	220.9	252	221.9	8.5	131.3	167.3	196.6	133.5	2079
<b>\$1,000</b>	92	152	112	81	121	112	105	4	66	84	94	72	1095
<b>CWT</b>	3193.4	5488.3	4410.8	3340.	4859.6	5543.1	4881.7	187.1	2887.9	3681.2	4324.2	2936.7	45734
<b>\$/CWT</b>	28.81	27.70	25.39	24.25	24.90	20.21	21.51	21.38	22.85	22.82	21.74	24.52	23.94

## LESSONS LEARNED

- Mission Team members saw the enthusiasm the demonstration audience had when new uses and varieties were demonstrated. Several of the chefs in attendance discussed using these at their restaurant. By utilizing the information learned at the demonstrations it would lead to additional purchases.
- It was unexpected to learn that many of the Asian buyers believed our main variety (russet) shipped was dirty because of the skin color and texture. Several shoppers also stated they didn't approve of the mealy texture of the flesh. Buyers were more inclined to pay more for a waxy type potato.
- Interest from chip manufactures continues to grow in Taiwan. As the buyers and sellers strengthen their relationships, so that contracts can be signed, sales of chip potatoes will increase.
- Many visitors to SE Asia already eat potatoes in their normal diet, so it is important that chefs have methods of preparation available.
- Many government residence of Hong Kong come from countries where potatoes have been a normal food item.

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**S21 TITLE: Berry Boost for School Nutrition with the Oregon Raspberry & Blackberry Commission – *Final Report (Approved 1/30/12)***

**Contact: Cat McKenzie, Oregon Raspberry & Blackberry Commission**

**Phone: 541-456-2264**

**Email: [catmc@peak.org](mailto:catmc@peak.org)**

**PROJECT SUMMARY**

The Oregon Raspberry & Blackberry Commission (ORBC) partnered with the Oregon Strawberry Commission (OSC) and the US Highbush Blueberry Council (USHBC) to launch an innovative program to create a locally produced berry product and support the sale of that product and other forms of berries through outreach to growers and packers through online contact lists and product formulation and packaging specs. Further support for the sales of berries to schools was supported by outreach to school food service with new recipe formulations for use in school feeding programs, information on Oregon berries and their use and handling. Teacher and student materials on the role of the berry farmer, how berries are grown and berries as a healthy part of a balanced diet were produced to educate our children about the food they eat. Product creation was done at the OSU Food Innovation Center with input from all grant partners. It is the idea that this product will be sold to school nutrition programs within Oregon and nationwide. This proposal leveraged the increased need for healthy, low fat foods, high in antioxidants in the nation's schools. Beneficiaries include economically hard hit berry producers and the nation's school children. Educational materials on berries and health to use in school curriculum was produced and is available online or by mail. Marketing of the berry product to schools was done at local and national school nutrition conferences.

This grant was awarded just prior to the enactment of the new "Healthy, Hungry-Free Kids Act" (S-3307) that has mandated a new awareness of the importance of fruits and vegetables in diets for children. Berry Boost for School Nutrition anticipated the changes this bill would bring about and worked to give Oregon and national berry farmers a new product that would allow them to utilize greater amounts of berries in a berry sorbet product that would give children a full serving of fruit in one serving.

**PROJECT APPROACH**

**New Trade Booth Panels**

Designs were developed for three new tradeshow booth panels for the existing Oregon Raspberry & Blackberry Association booth. Photography was planned and sourced for the new panels to complement the use of booth at both the attended school nutrition shows

**Education Materials for Schools**

Research was completed in nutrition education materials available for teachers and students by industry and other commodity groups. This helped to determine the type of materials that were

developed for use on websites of all participating berry groups. In line with suggestions from educational experts and teachers, we created tools that could be used by teachers in differing situations and could be used together or as stand-alone educational aids. A PowerPoint presentation was created for each berry group illustrating the work done by strawberry, caneberry and blueberry farmers to plant, cultivate and harvest each berry. Information on healthy food choices with berries was included in the presentation. Four downloadable worksheets that identify the parts of the three berries, strawberries, blueberries and caneberries, were created and designed for use in the classroom. A downloadable berry word find game was created for use with the tool kit.

The lesson planning kit has been finalized and includes the following: online games, a folder of stock pictures of berries and farms, a power point on caneberries, four educational worksheets, and information on all the berry varieties and their health benefits.

All resources were installed on the ORBC website in a newly created teacher resource section. As well as being web based, materials will be mailed out through Ag in the Classroom and posted in their newsletter.

### **Develop School Foodservice Recipes**

We worked with numerous Oregon School Districts to determine how berries are currently being used in schools and what types of equipment the school kitchens have available to produce recipes.

A survey was created and distributed to school food services directors to determine what types of recipes they feel would have ease of use and be appealing to the students. A telephone survey was conducted with ten school food service directors and nutrition managers in Oregon on the use of berries in the school feeding programs. This survey also included where they were getting berries from and what types of recipes they needed.

We determined parameters for the recipes based on the above survey and we conducted a search for dietitians to help develop new school foodservice recipes for berries.

We chose to work with the nutrition department at Oregon State University to develop new recipes. They were able to incorporate the development of the recipes into the curriculum of the nutrition students. When the program was complete we taste tested these recipes with Dr. Mary Cluskey of the OSU Nutrition Department and Corvallis School District representatives to see how they worked within the school feeding system. It was determined which recipes the students developed in this program would be used and posted on the websites of the participating berry groups. Ten new recipes were added for use in school feeding programs that were innovative and will provide new means for schools to incorporate berries into their school feeding programs. This program was so successful that it has resulted in Dr. Cluskey asking to work with the

ORBC again to create food service recipes using berries. This may be an ongoing part of the nutrition program at Oregon State. We were also able to source many more recipes than we had originally thought possible by partnering with the nutrition classes and Dr. Cluskey.

We had Core Communications layout and print 3 of these recipes for the Oregon School Nutrition Show, The National School Nutrition Show and other distribution. We designed the lay out and worked with them on fine-tuning the design and printing.

We will be using this layout with future recipes we develop for the Oregon Raspberry & Blackberry Commission to distribute to schools and on our websites and mailings.

From survey work done with school food service directors ORBC determined the need for a very clear web based location dedicated to those recipes for use by school food service personnel. This was created on the ORBC website, so that school food service personnel may access the recipes easily along with supporting information on Oregon berries and a PowerPoint on how to best use, store and handle these berries. This webpage is easily accessible on [www.oregon-berries.com](http://www.oregon-berries.com)

Both the Oregon Strawberry Commission and the US Highbush Blueberry Council were given copies of the recipes developed for the grant for inclusion on their websites

### **Oregon School Nutrition Show**

ORBC applied for and attended the 2009 Oregon School Nutrition Show on March 10<sup>th</sup> 2010. The Oregon School Nutrition Association was contacted to recommend school districts to meet with at the show that have the largest areas and also smaller school districts that have fewer resources. We were able to meet with Salem, Portland, Bethel, Turner and many other school districts at this meeting.

We contacted eight School Food Service Directors and child nutritionist and they came by our booth and sampled the berry sorbet we had developed, received recipes and discussed information about Oregon berries.

The berry sorbet product was sampled in 3 flavors at the booth, raspberry/strawberry, blueberry/blackberry, strawberry/blueberry. The attendees received the sorbet very well, and offered comments on how the product could best be incorporated into their programs. A tasting sheet was created to gather information on what the attendees thought of the product and how it would work in the school feeding program at their schools. This information was compiled and used in the further development of the berry sorbet product.

A power point presentation was created on the health benefits of berries for school children and presented on a loop at our booth.

New booth decorations were purchased which will be used at both the Oregon and National School Nutrition Association tradeshow.

The new recipes flyers were given out to all the attendees that visited our booth. We made very important contacts at this show that helped launch the products we developed and also will help to increase the use of berries in the school feeding programs.

### **Commodity Processors**

A survey was created to gather information from processors and growers on the type of product they would be interested in and capable of producing.

The producer/grower survey was posted online. The link to the survey was sent to the packers and growers for Oregon strawberries, blueberries, and raspberry & blackberries. The survey was also handed out at the ORBC Annual Meeting and the OSC annual meeting.

The survey determined that two products, berry sorbet and berry syrup were the highest-ranking products and one or both would be created by the Food Innovation Center.

From this survey we also determined that we should be able to create the berry sorbet product with one of the packers we currently work with in Oregon.

We attended the ORBC quarterly and annual meetings and the OSC quarterly and annual meetings and presented the grant project with updates each quarter and discussed with the commissions how the grant was progressing and received input from the groups on how to proceed.

This project was presented to the processors at the national US Highbush Blueberry Council Meeting in Portland, Oregon followed by a discussion on how this could be integrated into the current process. Updates on grant progress was communicated to the US Highbush Blueberry Council quarterly through reports and telephone conversations. A final report was presented to the US Highbush Blueberry Council at their annual meeting in Grand Rapids, MI.

All Commissions received the product formulation and packaging specs for three flavors of berry sorbet and three flavors of berry syrup as well as all teacher materials, food service materials and all food service recipes developed.

A website page was created for the ORBC website with contact information for Oregon processors to connect with Oregon school district purchasing personnel as well as Oregon School

Nutrition contacts to help facilitate sales of both fresh market and processed Oregon berries to schools. An article was written for the ORBC newsletter to alert members that this webpage was available to help foster sales to schools.

Meetings were held with six Oregon berry processors in which ORBC brought samples of the berry sorbet to taste and initiate discussion about interest in producing the product for schools. The processors were very excited about the product and were very interested in the possibility of a new product. Both Rainsweet Growers and Willamette Valley Fruit Company showed interest in a test run of the product. Once the harvest and packing season began both had to put plans to test the product on the back burner. Talks are still underway to have them produce sorbet and work with schools to have the product available.

ORBC has coordinated with blueberry packers and growers on the use of the sorbet in small batch configurations to be made by local producers and packers.

As a result of these meetings ORBC was able to change the product focus to the needs of the packer and adjust packing, labeling and ingredient sourcing to fit production needs. These meetings were very important to the shift from the development of the product on a test level to the needs of a larger processing plant.

ORBC and OSC meetings were attended with the berry sorbet to present the product and to update the commissions on the progress of the grant and answer questions from these groups on the product development process.

In the course of work with these products processors were contacted to supply berries needed, this created continuous awareness and communication about the progress of the grant.

Columbia Empire Farms showed interested in producing the berry syrup for school food service use. The syrup had more product development technical difficulties than the sorbet. Additional work would have been needed to take the necessary steps to reformulate the product further for a shelf stable type rather than a frozen type product that was the initial focus. The funding necessary to take this product any further was beyond the scope of the grant budget, but this product has been presented to the commission as “in progress” and outreach can be done to see if a producer is interested in continued product development on it with the Food Innovation Center. The current grant parameters only specify one product be created.

An offshoot of the berry syrup product development was that Sarah Masoni at the Food Innovation Center shared a sample of the berry syrup with a client who was having a

beverage product developed. The client felt that the berry syrup gave the needed flavor to his product and wanted to include it. He is currently working with Columbia Empire Farms on this secondary product and CEF is producing a version of the berry syrup for use in this product. While this was an unexpected outcome it does enable Oregon berries to be used in a new product development.

Contact was made with local commercial producers, Curley's Dairy and Alpenrose Dairy, to inquire regarding what types of products they have the capability to produce. Neither dairy was willing to produce product samples, as they preferred to have dairy products included in order to be involved.

### **ODA & Local School Outreach**

Meetings were held with Tami Kerr and Ag the Classroom on distribution and development of the finished educational materials.

We worked with Ag in the Classroom on the types of materials that are most successful with teachers and students. We want to ensure that our materials will be current, engaging, and accessible in classrooms.

We attended the Farm to School Tool Kit development workshop .Our presence at this workshop was important because we were able to advocate for berries to be one of the 10 fruits and vegetables that will be featured in the tool kit. Ultimately we were only successful in getting Oregon Strawberries included in the Tool Kit, but hope to see blackberries included in the future. This meeting was also a very beneficial to our project because we were able to see educational materials the schools are using and gain important information about how they are used in not only the classroom, but in the lunchroom as well.

ORBC representatives met with Michelle Markesteyn Ratcliffe, Farm to School Program Manager and Janet Beer, Department of Education Food Purchaser in April to taste the berry sorbet at the Food Innovations Center. Janet was a great resource helping us understand the Food Buying Guide and what portion and weight the sorbet product needed to be to qualify as a full or half serving of fruit.

June was berry month in multiple schools in Oregon. ORBC was able to supply recipes, promotional materials and nutrition resources.

ORBC meetings with Joan Ottinger and the Farm to School group helped raise awareness of berries as an important Oregon crop and a rich nutritional source. In 2011, Oregon berries will be one of the focuses of the Farm to Schools program in Oregon Schools. We will continue to support this program with any resources we can as their program develops. Farm

to School will also be publishing an article in the teacher's quarterly newsletter on our resources and when they will be distributed.

### **Cooking Demo –National School Nutrition Association Conference-**

The application for the SNA cooking demo was completed and submitted in December, 2009. Three existing berry recipes from the ORBC were sourced and chosen for the demonstration that used IQF and whole berries in combination with other food groups. These recipes were reworked to increase the nutrient value and decrease the sugar and fat content, so they would be in compliance with the national School Nutrition Association guidelines. To accomplish this we partnered with the Mary Culskey from Oregon State University Food Sciences Department. Mary and her students ran the recipes through an analysis program to determine a complete nutrient analysis and to yield 50 and 100 servings. The group then tested each recipe to make sure it would work well for use in school feeding programs.

A chef was located in the Dallas, Texas area, site of the National School Nutrition Association conference, to demonstrate the 3 recipes at the SNA Conference and his name and credentials were submitted with the application.

Our demonstration titled "Berry Up Buckaroo", to go along with the western theme of the conference was accepted as one of the 6 demonstrations that was presented at the 2010 National School Nutrition Show.

After our application was accepted we worked with our chef, Tom Nixon, on the presentation and the look and feel of the demonstration. We determined that all three of the recipes , Heavenly Marionberry Fruit Salad, Red Raspberry Date Bars and Strawberry Fruit Soup would be sampled to the audience and also created packets of the berry recipes that were distributed to the audience. Chef Nixon also demonstrated a "saucy blueberry" recipe as a recipe useful on many types of breakfast items. A Texas distributor was sourced by ORBC to provide the chef with Oregon berries for use in the recipes. Sample sizes of the recipes were produced by the convention center catering group, who also provided help in distributing samples to the audience.

ORBC Marketing Director Cat McKenzie spoke in conjunction with Chef Nixon's cooking presentation on ease of use of berries in school food service and the health benefits of berries for school children of all ages. An audience of around 100 school foodservice personnel were given recipes, health information, handling tips and a magnet with the "Eat Your Berries" logo to hold all the information. After the presentation the Berry Boost for School Nutrition booth was visited by numerous attendees who had been in the audience to speak to us about the use of Oregon berries in school foodservice. The USDA's commodity purchasing manager, Dave Tuckwiller, stopped by our booth along with several other USDA representatives to try the berry sorbet and talk about our grant.

### **National School Nutrition Show – July, 2010 - Dallas, Texas**

Berry Boost for School Nutrition had a booth at the largest national gathering of school food service professionals. The booth featured the new trade show panels with images of school-aged children eating berries and one with “Berry Boost for School Nutrition” on it. The show had an attendance of over 2,500 dietitians, nutritionists and school foodservice managers and professionals. The Berry Boost for School Nutrition booth handed out samples of all three flavors of berry sorbet with the new labels created for the product. Response to the sorbet was overwhelmingly positive with word spreading quickly about our new product and visitors coming to try the sorbet after being told about it by colleagues. The Food Innovation Center produced 1000 - 4 oz berry sorbet cups in the three varieties for the SNA show.

Arrangements were made with a frozen shipping company, freezer space was booked and a freezer for the booth was booked.

It was a challenge to arrange shipment of the sorbet to Dallas, since our load size was small and many frozen product carriers did not want to handle a small load. We were able to work with a Portland area shipper to add our load to another shipment.

In addition to the sorbet we handed out 1,000 packets of food service recipes held with a kitchen magnet marked with the “Eat Your Berries Logo”. Traffic to the booth was quite heavy and many food service managers indicated that they would be very pleased to purchase the berry sorbet as soon as it was available.

We were able to make contact with many people who are important in getting this product into the pipeline of school foodservice. Once the product is in production by a company it would be important to attend the school nutrition show once again.

### **Develop School Foodservice Product**

The work of developing a school foodservice product for use in the Berry Boost for School Nutrition Grant, began almost immediately with the grower and packer survey being distributed both in person, at meetings and by email or online survey. Once the survey answers were tabulated and it became clear that the product desired by most was either a frozen berry product or syrup, we began meetings with Sarah Masoni and her team from the Oregon State University Food Innovation Center. Initial meetings led to a determination that we would need to gather more information on a product before we began development. We canvassed local ice cream manufacturers to see if they would be willing to work with us on prototypes for this product and found that this was not feasible, and that we would be producing the product prototype at the FIC. We worked with dietitians and school food service directors to determine the fruit servings and percentage of fruit necessary to have our product be considered a full serving of fruit under the USDA nutritional standards for student’s meals. It was determined that a 2 oz serving size

would be one half of the required fruit and vegetable serving per meal and that would be the target size for our product. We then worked further with the FIC to make sure the product would contain the maximum amount of fruit, which was one of our goals for the product and also the least amount of sweetener possible to make it acceptable to children. It was determined that we would sieve out the seeds and return approximately half to the product to give it more fiber content and provide body. We further determined after consultation with school food service managers that each portion of berry sorbet would contain identifiable pieces of berry fruit so that children would be aware of what they were eating. After feed back at the Oregon School Nutrition Show from school food service managers, we increased the amount of pear concentrate, the sweetener, and reduced the amount of lemon juice in each serving to provide a sweeter taste and as a result also got a better texture and mouth feel in the product.

Concurrent to development of the berry sorbet, the FIC worked on a berry syrup with no added white sugar or corn syrup, using berries, lemon juice and pear concentrate. Initially this product looked promising when made as a frozen product and thawed. However we wanted to arrive at a shelf stable product and the taste when the product was canned had an “off” taste that would not work. After some further work, it was determined that we would focus on the berry sorbet and not work further on the berry syrup, as our grant specified only one product be completed and there was no additional funding to continue to work on the syrup. This would however be a product worth pursuing in the future.

One packer currently producing berry syrups showed interest in the syrup and indicated a willingness to produce it if we had a final formulation. A final formulation was created and although this packer is not producing the syrup as such, a variation on the syrup formula is being used as an ingredient in another product for the schools.

We did more research on packaging and narrowed it down to one that would work best for the sorbet. We worked with packers to determine which would be best for them to package with the least amount of equipment change over and at the price point schools can afford. Ultimately a 4 oz cup with a lid that is freezer safe was chosen, to allow packers to fill a larger cup, thus keeping prices in a better range. The smaller the packaging the higher the cost to the packer and the more difficult it is to work with.

While the 4 oz cup size would be good for schools with a lid that is easy for children to open, packers may ultimately decide on a bulk packaging option for cost reasons and have the sorbet scooped and served.

All nutritional analysis and formulation for the products was completed and is available in hard copy and online for packers to easily source.

Packaging for our prototype products has been sourced from Berry Plastics. The 4 oz cup with

lid is freezer safe, easy to open for children and a shape that will thaw in the time needed in a school cafeteria. It is at the lowest price point found for the requirements of the product and producers.

Labels for the cups were designed and printed for the tops of each flavor of the sorbet. This design is available for all producers use and is able to be changed to accommodate other or more information.

ORBC representatives took 500 samples of the sorbet to the Gervais school district school food service program and sampled it to students from 6<sup>th</sup> through 12<sup>th</sup> grades. The product was very well received. The students loved the fruit and the texture. The seeds in the sorbet did not bother them, which was one concern. We found that the older students wanted it to be sweeter which was one reason we increased the sweetness through increasing the pear concentrate.

Survey sheets were distributed to the children taste testing the product to determine their reaction. Results compiled from this survey show that 99% of all children liked the product with the 1% who did not like it feeling it was too tart. We were able to adjust the amount of pear concentrate in the product to bring the sweetness level up to a more acceptable level.

Kerr Concentrate in Salem was identified as the local and most economic source for the packers to use for the pear concentrate ingredient.

Samples of the products both in progress and in the final state were presented at meetings of the Oregon Raspberry & Blackberry Commission, The Oregon Strawberry Commission and the US Highbush Blueberry Council. The sorbet and syrup were also presented to meetings of Oregon packers to create interest in the product and receive feedback on how to make the product better.

Currently Naturipe Foods is working with the berry sorbet to see if they would like to produce it commercially. Rainsweet Growers, Inc and Willamette Valley Fruit Company have also indicated that they are interested in working with the product in the future. Outreach to and support for packers is ongoing and we hope to see the berry sorbet in production and in the schools in the future. We realize that the time frame from product development to production is much more wide ranging than our initial estimate and to fully explore the execution of the product on a large scale as well as develop a business plan for the sale of the product will take companies longer than was thought. However, we still believe that the interest in producing the product locally and selling to local schools has good potential and will be bringing information on the product formulation to packers as we speak with them in the future.

## **GOALS AND OUTCOMES ACHIEVED**

A new product using the maximum amount of berries possible that keeps fats and sugars to a minimum and provides a full serving of fruit for school children has been created for this grant. The product, a berry sorbet, is easy to make and utilizes existing plant facilities with a minimum of retooling. The sorbet can benefit Oregon and national packers by creating more demand for berries from school districts needing to increase the amount of fruits in feeding programs. The program can benefit schools and students by providing a tasty, nutritious and easy to serve product that features a full serving of fruit for a reasonable cost per serving.

Educational materials have been prepared by this grant for teachers to use in the classroom to educate students on the roles farmers play in bringing healthy nutritious foods to the table and how they accomplish this. Student materials prepared give students a fun way to learn about berries and how they grow as well as their nutritional value. Food Service workers have been provided with materials on berry varieties, berry dishes that are easily prepared in school cafeterias and how to handle and store berries.

Website pages have been created for all of these groups and these pages will also benefit other users by helping them learn more about Oregon and its berries.

National and local school nutrition shows have allowed Oregon berries to reach a much wider audience than possible in the past. Our presence at the Oregon SNA and National SNA conferences have informed a very wide audience of the variety of berries Oregon produces and established that Oregon berries are high in nutrients and grown with a high level of food safety. All of these tools will allow the growth of the Oregon berry industry into larger marketplaces and will contribute towards the expansion of the state's berry industry.

### **Measurable Outcomes**

Goals and measurable outcomes of the "Berry Boost for School Nutrition" were:

- To increase the availability of online berry health benefit information for Oregon teachers, school nutrition officials and students. The online sites would be able to generate concrete, trackable evidence on which school districts were visiting the website.
- Promotional kits containing information on the health benefits of berries would be created and posted on school nutrition pages that would be developed by each participating organization. This application would be made available to all participants (growers and packers) in the proposal and would be downloadable by schools.

The amount of online berry health benefit information for all educational and school food service personnel has increased substantially. To date we have created the following available resources:

- Teacher materials including
  - An online listing of Oregon berry varieties and their background information, harvest dates and health information

- A PowerPoint slide show for use in the classroom on the job of a berry farmer and how berries grow
- Four worksheets for use in the classroom on the scientific parts of a berry and a word search for use in identifying words about berries
- Food Service Information
  - Ten new school foodservice recipes for use with berries
  - A PowerPoint presentation for school food service personnel to explain the usage of Oregon berries in school feeding programs and to identify berry varieties and their usage
- Student Information
  - An online game for students
  - Online downloadable activity sheets
- Packer Information
  - Listing of all Oregon school district purchasing managers to contact regarding sales of berries to schools
  - Listing of Oregon School Nutrition Association officials to contact regarding showing or testing berry products for Oregon schools
  - Three new recipes formulations for sorbet and three for syrup using berries that are low fat, low sugar, high fiber and contain adequate servings of fruit for use in schools.

All of this information has been made available to all participating berry groups to add to their websites.

**Performance Measure:** The number and geographic location of all downloads would be tracked by software available online and the statistics on this would be made available to all participants.

**Benchmark:** There is currently no school information page on the ORBC, OSC or OBC site.

**Target:** Deliver online health benefits information on Oregon berries to 25% of Oregon school districts. There are 197 Oregon school districts.

Information generated from these web based sources could help target school districts who had shown interest in the new berry product and allow marketing of the product to the interested school districts. Districts who had not visited the websites could be identified as areas needing more information on the product, perhaps generating a marketing visit and product sampling. Various web tracking devices such as Google Analytics or Cooleremail.com could be used to track the visits and email results and reports on this would be available to proposal participants

**Performance Measure:**

Currently information from Google Analytics indicate that the following pages have been frequently visited in the time period from October, 2010 to January, 2011, Teacher Materials, Food Service Information, Packer Information, Student Pages for a total of 345 visits, primarily from the state of Oregon. Prior to this there were no web pages on these topics, so this is a significant increase of information going to our target grant audience. We believe that as time

goes on and we approach the spring and early summer seasons we will see a jump in web visits as teachers and food service personnel seek to plan lessons and meals around Oregon berries.

**Benchmark:**

School Information pages as outlined above now are online at the Oregon Raspberry & Blackberry Commission website [www.oregon-berries.com](http://www.oregon-berries.com)

Neither the Oregon Strawberry Commission nor the US Highbush Blueberry Council have added information given them to their website at present, although all information has been given to these groups, they have not had the time to update their sites with the information.

**Target:**

To date the Berry Boost for School Nutrition Grant, has contacted over 55 school districts regarding the information produced in this grant. We have made personal contact , spoken on the phone, contacted via email or sent information by mail.

**BENEFICIARIES**

Growers and packers of Oregon berries have been provided with the tools and contact information needed to sell their berries either fresh or frozen to school districts and build on these relationships to establish a link between local producers and schools both in the sales of berries and value added berry products.

Beneficiaries now have a total of sixteen new web pages filled with resources to help them sell, buy or learn about Oregon berries. Six new formulations for berry sorbet and berry syrup have been developed and package labeling and package specs have been posted to help in the production of a new product aimed at schools that will help the industry grow and prosper. While this may take a number of years to fully come to fruition the information provided in this grant will play a role in helping the growth of the Oregon berry industry.

**LESSONS LEARNED**

When embarking on a project of the scope and breadth of Berry Boost for School Nutrition it was important to keep in mind that while we may be able to accomplish the state goals for the project, the work of production and sales will fall to the packers, processors and growers who wish to work with the information provided to grow their businesses. In the beginning, we believed that much more could be accomplished in a short time period than was realistic. Just the product development portion of the grant posed greater issues than we could have envisioned. However, we have been fortunate that the staff at the Food Innovation Center was willing to embrace the idea that change was not only good but also necessary to ultimately arrive at a product we were all happy with.

It is clear that we could have spent much longer working on the product, but it is not clear that we would have gotten a better result.

The berry industry partners in the grant the Oregon Raspberry & Blackberry Commission, The Oregon Strawberry Commission and the US Highbush Blueberry Commission worked tirelessly with their members to make sure their support for this project was behind us. The packers, processors and growers we worked with have been extremely important in helping us see what the reality of producing this product meant for them and although we are not yet in production with this product, the interest is present and only time and staff constraints have prevented some producers from having the product up and running at this point.

We also welcome the unexpected outcome, that the berry syrup, a product that was completed to a point and laid aside, has proven to be the product that is now in the early stages of production even though not for use on its own but in formulation with a soy drink product for schools. This was a surprising but welcome outcome.

While this project was created as a means for local growers and packers to sell a value added product to local schools, we may find that utilizing the existing commodity processing avenues available through the USDA may prove to be the most practical way to get the most berries sold and to the schools. This will have to be explored further if we do not see results from local producers. Once again this is a lesson in being open to other avenues to achieve an objective if the original path does not end at the planned destination.

The ORBC wishes to thank the Oregon Department of Agriculture and the USDA for their support with this grant.

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**S22 TITLE: Assessing the Decline and Future Potential of Fine Turf Grass Seed Markets in the United States with the Oregon Seed Council – *Final Report (Approved 1/30/12)***

**CONTACT NAME: Roger Beyer, Oregon Seed Council**

**PHONE: 503-585-1157**

**EMAIL: [roger@rwbeyer.com](mailto:roger@rwbeyer.com)**

### **PROJECT SUMMARY**

The initial purpose for the project is to better understand the current state of the marketplace for Oregon turfgrass seed products. Market demand changed significantly in recent years and the industry needs to know why this has occurred as well as what they can do to adapt to this changing marketplace. There is need for specifically understanding the major underlying factors that impact market demand and purchase decisions and also what opportunities exist to improve the competitive position of Oregon turfgrass seed products.

The motivation for this project is to assist growers, dealers (first-level wholesalers) and others in the market supply chain more quickly adjust to year-to-year fluctuations in end-user demand. For example, in 2007-2008 when grass seed production was still expanding in Oregon final customer sales/demand was rapidly declining. The grower end of the supply chain was not fully aware of conditions that were leading retailers and others to reduce and cancel orders.

### **PROJECT APPROACH**

The principal activities of this project that were performed during the grant period were:

- Exploratory research: the Consultants collected and reviewed over 200 different sources of existing studies, reports, publications, articles and internet data. A firm foundation was established to understand the industry from the viewpoint of the media/public viewpoints, key opinion leaders, government agencies and their policies and research organizations. Opinion leaders from across the industry/country were identified and over 20 were contacted for to gauge their views and obtain more specific knowledge of the industry from these influential persons.
- Informal industry focus groups: An element of exploratory research was added to obtain the industry viewpoints and concerns of Oregon seed dealers (wholesalers). Twenty-three executives from Oregon seed companies were convened in two focus groups held in June 2010. The evolution of the industry up to the present with problems and opportunities were openly reviewed in the focus group meetings and these perspectives were incorporated into the quantitative research summarized below.
- Quantitative research: Telephone surveys of 375 buyers (principally golf courses managers, landscape/grounds maintenance contractors, and government entities such as schools and parks) and 103 sellers (distributors and independent retailers) were conducted in October and November of 2010. An on-line survey of 29 Oregon seed

dealers (first level wholesalers) was also conducted in September and October of 2010. Separate reports for each of these groups were prepared for the industry.

- Strategic recommendations: The Consultants drafted and revised a set of major recommendations from the research and included this in the narrative reports to the Oregon Seed Council.
- Outreach and presentations: The Consultants presented the project research to the Oregon Seed League Annual Meeting and the Oregon Grass Seed Bargaining Association Annual Meeting (growers). An audience of about 250 growers heard the presentations and had the chance to ask questions and offer their input. In addition the Consultants wrote an article outlining research findings for the inaugural issue of the Oregon Seed Magazine, a publication broadly distributed to turfgrass seed growers in Oregon.
- Several very significant results were accomplished in this project. First, data was collected from Oregon seed dealers to estimate current sales across six U.S. regions and market segments (golf, landscape, government, etc.). Previously no data has existed to make reasonable estimates of where Oregon turfgrass was sold in the U.S. or what market segments were most important. Second, customers for Oregon seed gave candid information about what motivates their purchase decisions, and what they view as important to increase seed sales. Finally, the Oregon industry has recommendations that arise directly from the research to make strategic decisions about how to move the industry from its current stage of commodity sales back to products that are more value-added and less subject to competitive threats.

The steering committee of 11 members that included grass seed growers, seed dealers, and the OSC Executive Director were an invaluable resource for guiding the Consultants to form and execute the research plan as well as interpret findings and drawing conclusions. The steering committee also gave the Consultants suggestions for how to engage with segments of the industry. The project also benefited from the input of 29 seed dealers, and over 500 buyers, resellers and persons in key positions who added their views to guide and move the project forward.

## **GOALS AND OUTCOMES ACHIEVED**

The activities that were completed in order to achieve the performance goals and measurable outcomes for the project are stated in the Project Approach section above.

This project accomplished the goals that were originally established for the project:

- Identify traditional market segments for turfgrass seed by species and U.S. region. This was accomplished primarily from the research and survey of Oregon grass seed dealers.
- Identify the factors that have led to the decline in demand for turfgrass seed in the past five years. This was accomplished primarily from the research and survey of the buyers and re-sellers of turfgrass seed across the U.S.

- Recommend actions needed to return the market to former high levels of sales. This was accomplished by review of all research and from discussions of the implications of research with the steering committee.

The baseline data that has been collected on the markets is extensively described in the final report prepared for this project, “Turfgrass Seed Market Study – A Summary” and in four other major reports with additional description of the research data, analysis and recommendations. All reports have been completed and provided to the Oregon Seed Council.

The research and report provide the baseline for understanding the current U.S. market for turfgrass seed and the challenges and opportunities for addressing the recent decline in U.S. sales for turfgrass seed. For example, the research shows the 2009-2010 sales of Oregon turfgrass for the six regions of the U.S. and for export. The research also estimates sales by region and market segment (e.g. the landscape/professional segment in the Northeast U.S. region accounted for 10 percent of all turfgrass sales in 2009-2010 and sales directly to consumers account for 40 percent of total U.S. sales in 2009-2010).

## **BENEFICIARIES**

The principal groups that are benefiting from completion of this project’s accomplishments are 1) Oregon turfgrass growers, 2) first level wholesalers of turfgrass such as the Oregon turfgrass dealers 3) companies with branded products who need data for their marketing plans and sales programs and 4) seed breeders and other researchers who are developing new varieties based on targeted users. Additionally industry organizations such as the Oregon seed commissions and the Oregon Seed Council benefit by having a much better understanding of market data and the attitudes of turfgrass seed customers to target their marketing, research and overall business plans.

The quantitative data for use by the beneficiaries from this project and it’s accomplishments include:

- Sales by segment and region
- Buyer and re-seller attitudes toward the products and their needs for future sales increases.

## **LESSONS LEARNED**

Many insights have been learned from this research. Among them the most significant are:

- The U.S. market for turfgrass seed is maturing and there is a need for new innovation in seed products to restore market growth. Product lifecycle maturity also leads to consolidation in the number of major industry participants in the supply chain. This consolidation can be expected to continue, and true product innovation is vital to the future of this industry.

- The consumer market segment is the largest all segments and there are barriers to entry due to the cost of developing and maintaining brands.
- Distributors (re-sellers) of turfgrass are facing intense competition and the dealers (first level wholesalers) are being asked by retailers and other seed sellers to fill roles traditionally filled by the distributors.
- The economic recession and the decline of the golf industry have been major factors that have reduced demand for turfgrass in the last five years.
- Oregon has lost brand equity because buyers seem less concerned about the origin of grass seed today compared to the past. However, the industry has not been telling its story and it is worth informing buyers of the reasons that Oregon is the dominant supplier of these products.
- Many actions can be taken if the industry wants to take its place as the national leader in turfgrass production and marketing. If it does not, the market channel will look increasing to the mid-west and elsewhere for more seed products.

One of the unexpected outcomes of this project was that the only place to get useful data on the sales by region and segment was to survey the first level wholesalers (seed dealers). Otherwise the sales and marketing is too fragmented for gathering the market data required in this study.

Other unexpected outcomes were:

- Issues such as water conservation and its negative impact on turfgrass sales have been overstated as a cause for decline in the market for turfgrass.
- A majority of Oregon seed dealers believe that there should be more standards/requirements for growers to enter the dealer business. This is a contentious issue between dealers and growers.
- There is a general belief that patents or other protections are needed in order that seed breeders/developers have sufficient financial incentives to undertake expensive product research and development.

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**S23 TITLE: Sustainability Certification for Christmas Trees with Oregon State University, North Willamette Research and Extension Center – *Final Report***

**CONTACT NAME: Chal Landgren, Oregon State University**

**PHONE: 503.678.1264 Ext. 142**

**EMAIL: [chal.landgren@oregonstate.edu](mailto:chal.landgren@oregonstate.edu)**

## **PROJECT SUMMARY**

Christmas tree growers in Oregon and Washington are at a critical juncture with regard to environmental/sustainability certification. Some buyers are asking for evidence of environmental stewardship, growers are interested in developing sustainability plans, yet a strong widely available program is yet to emerge. This project established such a program. It also builds on the excellent efforts of the Pacific Northwest Christmas Tree Association (PNWCTA) in development of the Socially and Environmentally Responsible Farm (SERF) program.

There are four interconnected components that this project builds towards sustainability certification of Christmas trees. First, this was a two state effort with Oregon and Washington growers voluntarily participating with assistance from Oregon Department of Agriculture (ODA) and Washington State Department of Agriculture (WSDA). Second, the project sought to develop a well-vetted set of standards and to develop template-training materials to assist growers in completing their own Sustainability Plans. Thirdly, training materials were developed (English/Spanish) to assist field workers in becoming better at scouting and Integrated Pest Management (IPM) principles. This complimented the certification program and built-in training for field workers. Fourth, the program begins the development of a marketing program that over time should be self-supporting. The marketing program has both a wholesaler and consumer component. A developed brochure can be used by producers to alert buyers/chain stores about these newly developed standards. Also on-tree hanging tags alerts individual consumers about the sustainability history of “their” purchase.

Each project builds on and complements the other. Standards and inspection procedures are needed for certification to be a meaningful option. Growers need training to develop their sustainability plans. As growers fulfill plan standards and improve their management, workers will become better trained in looking for pests via the scouting/IPM classes. Control then becomes more targeted and growers can justifiably document improved environmental performance practices. And finally, grower effort in environmental stewardship will hopefully receive recognition in the marketplace both from consumers and wholesale purchasers.

The Pacific Northwest (PNW) is the largest tree producing region in the U.S. with over 91,000 acres in production. The majority of trees are exported to other states and countries. Both wholesale and retail customers are asking questions regarding sustainability of the cropping

system relative to artificial trees and the use of “real trees” in households without a Christmas tree.

## **PROJECT APPROACH**

Below is a summary of activities performed and tasks performed during the grant period:

Development of Standards and Compliance Goals - Formation of a 20 person Advisory/Steering Committee - 6 meetings (1/2 day each) over 5 months to reach agreements between a number of interest groups regarding meaningful Sustainability Plan conformance goals.

SERF Plan Preparation - 18 growers participated in 40 hours of class/field/self-study during a 4-month program at North Willamette Research Extension Center (NWREC) and in the field.

Seven farms completed SERF plans. Five farms in Oregon (4000+ acres) completed both the SERF plan and passed final inspections by ODA. Two farms in Washington state were left in limbo in 2011 while the WSDA determined how they could conduct the “farm audit”. It has taken over two years of discussion with WSDA to finally allow inspections.

The field IPM book (106 pgs.) - *Identifying and Managing Christmas Tree Diseases, Pests and Other Disorders and Identificacion y Manejo Enfermedades, Insectos y otros Disordenes Arboles de Navidad* by L. Santamaria and C. Landgren was developed, vetted, and published (400 copies were printed). Over 150 books have been purchased or given to SERF participants. One unusual development was the use of and interest in this book by Mexican Regulatory Inspectors and growers in other states and countries. (To download see- <http://www.serfcertified.org/resources.html> )

The SERF Guidelines Template - *Developing a Sustainability Plan for your Christmas Tree Farm*. By C. Landgren was produced and used by 30 growers in 2 states as an example for plan preparation (100 copies were printed). See appendix for examples.

Two full day worker-training sessions (in Spanish) were offered at field sites. In total over 150 farm owners and workers (English and Spanish) were trained in using the IPM books for insect, disease and disorder diagnosis in Christmas trees.

20,000 SERF marketing brochures, 30,000 SERF tree hangtags and a web site (<http://www.serfcertified.org/>) were developed for the 2011 tree sales season. Evaluations suggested that the hangtags needed more space for grower price information and tags in Spanish would be helpful.

A post-season evaluation of the program by SERF participants was conducted. Results were largely anecdotal. For many buyers, this was their first look at SERF and they were learning about the program. It will take time to build awareness of this new program.

The following project partners provided significant contributions in the project:

The PNWCTA made significant contribution to the project in numerous areas including - multiple articles in their magazine encouraging program participation, web-site hosting, graphic design, mailing, use of e-mail contact lists, hosting meetings, brochure hangtag development, time at meetings to explain the program.

The ODA Commodities Inspection Group offered their expertise and time in mock inspection, plan preparation, assistance in developing realistic plan goals and inspection procedures.

Washington State University (Dr. Gary Chastener and Kathy Riley) and Penn State University assisted in reviews of the IPM books and in contributing photos and expertise for use in the book.

The local Soil and Water Conservation District of the National Resource Conservation Service was involved and helpful in working with growers regarding the Soil and Water Conservation portion of SERF plans.

## **GOALS AND OUTCOMES ACHIEVED**

The following activities were completed in order to achieve the performance goals and measurable outcomes for the project:

As of today, 5 farms representing 4,606 acres of production have been SERF inspected and certified. Another 3 farms are finishing their Sustainability Plans, including one farm in Washington.

Many thousands of tree hangtags, brochures, media contacts and web “hits” was introduced into the market place in 2011. See the SERF web site at- <http://www.serfcertified.org/>.

Below is a comparison of actual accomplishments with the goals established for the reporting period.

Proposed Project Goals:

1. Training of 10 farms/individuals to produce a Sustainability Plan for their property. This will be a multi-week training session involving over 40 hrs. of instruction time plus out-of-class preparation.
2. Of the 10 farms/ individuals in the class, 6 completed successful inspections under the new Sustainable Certification program.
3. Employees from each of the 10 farms will be trained in scouting of pest and diseases and IPM during a workshop of 16 hrs. in two days sessions. Total- 20 participants. If needed, this workshop will be repeated with another 20 participants.
4. The knowledge gained by participants in the IPM and scouting classes will be determined by pre-post surveys.
5. 1,000 tree hanging tags will be placed on certified trees in the marketplace
6. Final course evaluation will be carried out after training to determine program impact and improvement needs.

Actual Accomplishments:

1. In 2011, 18 producers met for the multi-week training sessions. In addition 3 producers in Washington State met via Adobe Connect Remote sessions to work on their plans (on alternate weeks from the NWREC class. In 2012, four famers met via conference calls (and one NWREC session) to develop plans.
2. In 2011, five farms representing 4,606 acres, completed SERF plans, inspections and received SERF Certification. In 2012, three farms have prepared plans and are undergoing inspections.
3. The *Christmas Tree Diseases, Pest and Other Disorders* (English and Spanish) was completed (PDF in appendix). Over the past two years 107 participants have reviewed training in English. Two full on-farm sessions in Spanish on farms were completed. Pre-Post tests were conducted at one session to evaluate both the book and knowledge gained.
4. In 2011, 30,000 tree hangtags, 20,000 brochures and a website were all developed and used.
5. A course evaluation was carried out with the participants of both the on-line and in-class sessions. Results indicate that the in-class sessions were preferred, but participants appreciated the option of not driving long distances to class. Participants also realized that producing a SERF plan required quite a bit of personal time for sole farm owners. Future classes likely will have longer time between classes for growers to finish each session prior to moving to on.

Below are the baseline data that was gathered and the progress toward achieving set targets:  
Prior to this project there were no SERF certified Christmas tree farms

We have baseline information for the 2011 market season of trees sold by SERF certified farms. Market improvement will be long term and in the larger picture will need years to mature.

## **BENEFICIARIES**

The Christmas tree industry in Oregon has a crop value of \$92 million and occupies 75,000 acres of production with over 600 farms licensed with the Oregon Department of Agriculture.

Some of the beneficiaries of the SERF project likely had little idea that the training was even part of a certification program. For example, a number of the safety, IPM and record keeping sessions at PNWCTA general meeting were organized and presented to assist in preparation of SERF plans.

More direct beneficiaries of the SERF program are the following operations and groups:

- Spanish language IPM training was offered to 40+ Christmas tree workers. Many stated that this was the first IPM training many had experienced in their careers. Many also noted this was the first time they have reference material in their language. An additional 100+ English-speaking participants received training and a copy of our IPM book.
- The farms completing their SERF plans represented 4606 acres of production and all were enthusiastic regarding their efforts. Marketplace demand for SERF branded trees will take years to mature and develop and will rely on this core group.
- The Hispanic workers engaged in the IPM training demonstrated improved skills in using diagnostic tools and IPM practices on the farms participating in the program. In total, 107 participants have reviewed training in English. Two full on-farm sessions in Spanish on farms were completed. One farm purchased 30 books for use by workers in their field operations
- Thousands of brochures, media contacts and interviews will provide the SERF farms with marketing contacts for the following selling seasons. A sample of media coverage on the 2011 selling season is included in the appendix.

## **LESSONS LEARNED**

The following insights were lessons learned by the project staff as a result of completing this project:

Assembling quality photos and IPM information and trying to illustrate diseases, insects and disorders in 2 languages, required vastly more time and effort than anticipated.

Locating growers willing to spend the many hours needed to complete SERF training, plan preparation and inspection was harder than anticipated.

The following unexpected outcomes arose and effected the implementation of this project:

The IPM booklet (particularly the Spanish sections) has proven to have a much wider audience than anticipated.

Likewise, the SERF template document has had interest from other commodity groups outside of Christmas trees.

Some of the goals or outcome measures were not achieved, and the following lessons learned will help others expedite problem solving:

Though not a stated measureable outcome, determining market impact of a new program such as this is very illusive. For many tree buyers and consumers this was their first year of exposure to SERF certification. Outside of a few sustainability conscious buyers (such as Whole Foods and local stands) the bigger box stores still operate in a very price sensitive environment.

It required much more time than anticipated for WSDA to adopt the SERF inspection guidelines and this slowed inspections and plan preparation in Washington State.

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**S24 TITLE: Role of Fresh Sweet Cherries in Modulating Biomarkers of Cancer Risk among males at risk for Prostate Cancer with the Oregon Sweet Cherry Commission – Final Report**

**CONTACT NAME: Dana Branson, Oregon Sweet Cherry Commission Administrator**

**PHONE: 541-386-5761**

**EMAIL: [osweetcherry@gmail.com](mailto:osweetcherry@gmail.com)**

**PROJECT SUMMARY**

Prostate cancer is the most common cancer in men. It is diagnosed in approximately 185,000 men each year resulting in 29,000 prostate cancer related deaths. Low-grade chronic inflammation has been implicated as a risk factor in prostate related pathologies leading to high interest in drugs and foods with anti-inflammatory properties. Cherries and berries are a rich source of anthocyanins are soluble carbohydrate molecule pigments that appear as red, blue or purple color. Anthocyanins (ACN) have been shown to inhibit inflammatory responses in cells grown in the lab. Blocking of inflammation is strongly supported as a way to prevent cancer in humans. Consumption of anthocyanins through the eating of foods that are rich sources such as cherries and berries offers a non drug based approach to deliver these compounds in the human diet to block inflammation without the toxicity associated with pharmaceutical agents. Previous research has shown the inflammatory outcome biomarkers (an indicator of a biological state) selected for this study are affected by non-steroidal, anti-inflammatory drugs and food components in human trials. And current research has improved the understanding of the metabolism of anthocyanins. The desired outcome of the project was to identify a positive correlation between the biomarkers for prostate cancer and cherry consumption for use in marketing fresh cherries.

**PROJECT APPROACH**

Two groups of men were recruited for a four week feeding eating 3 cups of fresh cherries each day. Extra subjects were recruited to allow for drop-outs. Each group also went through a pre-wash period, which was a two-week no anthocyanin diet and non-steroidal anti-inflammatory wash out period. The purpose of the pre-wash diet was to eliminate affects. Thirty-nine men completed the trial.

Urinary and plasma samples were collected pre-wash out period and at the end of the wash out period to document anti-inflammatory biomarkers at each stage of the study and measure the changes. One hour after consumption of the last dose in the clinic the final blood draw and urinary collection for analysis was taken. Biomarkers of inflammation including serum hsCRP (a measure of chronic low grade inflammation), urinary PGEM (13,14-dihydro-15-ketometabolites, a stable metabolite measure of cyclo-oxygenase 2 activity)(1), urinary 8-epiPGF<sub>2</sub>α(2) (F<sub>2</sub>-isoprostane 8-iso prostaglandin F<sub>2</sub>α ; a non COX-2 measure of bioactive products of lipid peroxidation) and urinary 11-dtxB2 (a major enzymatic metabolite of thromboxane A<sub>2</sub> and

marker of platelet aggregation) were evaluated for change from baseline (post wash-out) to end intervention of greater than 1 standard deviation were considered a biologically important response. The conclusions in the inflammatory summary were as follows:

- 1) No changes in baseline PGEM or hsCRP.
- 2) Changes in PGEM or hsCRP were not associated with intake exposure or circulating ACN exposure.
- 3) There was a significant increase in hsCRP in men with initial lower levels of hsCRP.
- 4) There was significant decrease in PGEM (COX-2 metabolite) in men with elevated baseline values.

No anthropometric changes (weight, Body Mass Index, blood pressure, heart rate) were observed during the trial. And there no significant changes reported in the quality of life or bowel habits of the participants. More details are available in PowerPoint presentation and thesis manuscript in the appendix.

While it was considered highly unlikely that eating 3 cups of fresh cherries daily would have an adverse effect on human health, a measurement of plasma homocysteine to monitor potential adverse effects of high daily consumption of cherries was included. Nakagawa et al., (1) found that rats exposed to anthocyanin through the diet suffered elevated homocysteine levels that were attributed to anthocyanin effects on the metabolic regulation of sulfur amino acids and S-adenosyl methionine. Such elevation in humans would be considered a potential dose limiting toxicity as elevated homocysteine is associated with increased disease risk in humans (2). This marker serves to minimize the concern that may be raised by informed consumers and scientist reviewers. The conclusion reached from the plasma homocysteine measurement was that given this high-risk population (age and weight) further research is needed to determine if there is an association between cyanidin (Cy) and homocysteine (Hcy).

In addition a separate analysis was done on each batch of cherries used in the feeding trial to determine the level of anthocyanin (ACN) in each variety. This was not in the original project description, but was added when we realized that Bing cherries would not be available for all the subjects for the entire trial. The ACN content varied from a low of 7.18 to a high of 161.56 during the trial. The ripening stage had the greatest influence on cherry ACN. Participants in the second trail were exposed to significantly more ACN and that showed up in the plasma and C3RUT (an element in the urine).

The results of this study add to the body of knowledge being accumulated about the nutritional benefits and effects of fresh cherries. The conclusion that will be used in marketing material from this is the fact that there was a reduction in the urinary biomarker PGEM (an initiator of prostate cancer) in men with elevated levels. Inflammatory levels at the beginning of the trial influenced the outcomes. Subjects with high levels of PGEM at the start had a greater reduction. Another major conclusion, which may or may not be helpful to marketing, is that the ACN levels in cherries varies significantly with harvest time having the greatest effect.

The staff of Northwest Cherries/Washington State Fruit Commission, partners in the grant, were responsible for setting up the procurement of cherries and having them shipped to the researchers in Arizona. They also used their relationship with the Whole Foods Market in the University of Arizona neighborhood to receive the shipments and hold them for pick up. Their flexibility and resourcefulness in this task was invaluable given the limited availability of cherries in 2011.

### **GOALS AND OUTCOMES ACHIEVED**

The expected outcome of this study was a published article on the findings in a noted scientific journal within two years of its completion. In the cherry season following publication Northwest Cherries planned to gain at least \$500,000 advertising value due to the publicity of the health benefits in the media.

A draft manuscript has been written summarizing the data collected from plasma & urinary samples as well as the analysis of the ACN levels in each batch of cherries by the trial coordinator, a graduate student, Lindsey Diemert. It is currently being edited by the Principal Investigator (PI), Dr. Patricia Thompson. This manuscript will be submitted for peer review and publishing in a noted scientific journal. The short-term goal of the project has been achieved. Peer review, we have been told, takes anywhere from four to eighteen months. Until the review is complete the research is not available online and there are no presentations scheduled.

In the long term Northwest Cherries will include applicable information learned in this study in promotional material and media. Depending on funding additional research on the health benefits of cherries building on what was learned in this project will be undertaken.

### **BENEFICIARIES**

The groups that benefit from this study are men at risk for prostate cancer, their families and sweet cherry growers in the Northwest. The potential economic impact is in the reduction of medical costs to the individuals and society and in potential increased demand for cherries from growers.

The estimated number of cherry growers in the Northwest that would benefit from a positive health message regarding cherries is 2,300. There are over 350 cherry growers in Oregon of various sizes, ranging from 1,000 acres to as little as five acres. The value of total cherry production in 2011, which is the most recent year statistics are available, was \$834,585,000 for the entire U.S. The value for just the five states (Oregon, Washington, Idaho, Utah and Montana) that make up Northwest Cherry Growers was \$617,187,000. These dollar values were taken from the Non Citrus Fruits and Nuts 2011 Summary dated July 2012.

This research project was our first attempt to identify a specific health benefit that could be proven and used in educational and promotional materials. The idea for the study came from

work done at the University of Arizona on purple carrots. Due to their dark color like cherries, purple carrots are high in anthocyanins, a powerful anti-oxidant, that have shown evidence of anti-inflammatory activity. Chronic inflammation is a known cancer risk. This was a baseline study. Although the variables that were known were controlled for as much as possible, the results have indicated that more work needs to be done in order to learn the optimal amount of cherries to eat and their specific health effect.

The goal of the Oregon Sweet Cherry Commission and our partners at Northwest Cherries in the grant was to produce a peer reviewed paper published in a recognized scientific forum. We are still working with the University of Arizona to complete that portion of the grant with submission to Cancer Prevention and/or the Journal of Nutrition. Once the results from the study are accepted by peer review and published in an accredited scientific journal the industry will be able to work with the USDA to create and disseminate a health message that was created through the research. At this time the NW Cherry industry is waiting for the University of Arizona to get the results of the study published.

### **LESSONS LEARNED**

Based on the findings the research concluded that one cup of cherries three times daily for four weeks significantly reduced the COX-2 metabolite, PGEM, in men with elevated baseline levels. This was the first study to examine the chronic effects of daily sweet cherry consumption on COX-2 inhibition in a population of men at elevated risk for inflammatory mediated cancer. The decrease in PGEM in the subsample could not be explained by individual ACN levels in end-of-study urine or plasma and is striking given the modest sample size (n = 17) and large batch-to-batch variation in cherry ACN levels and inter-individual variation in circulating metabolites. Given the potential anti-inflammatory effect noted with moderate amounts of the whole food, it would be informative to determine the optimal dose of ACN needed to produce an anti-inflammatory in individuals with evidence of inflammation. However, with the strong effect of season on ACN concentrations, attempts to produce a more equivalent exposure per subject such as a dried or frozen product from the same batch is recommended for future studies. In addition, while not statistically significant, we find it concerning that homocysteine levels were elevated above clinical norms in 10% of subjects with lower body weight consuming three cups of cherries for the short duration of four weeks, a pattern observed in animal studies. Additional efforts are needed not only to assess the beneficial effects of cherries and other ACN containing foods but also to assess the potential adverse effects of higher doses of ACN intakes within ongoing trials on homocysteine levels.

### **References**

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2. Milani RV, Lavie CJ. Homocysteine: the Rubik's cube of cardiovascular risk factors. *Mayo Clin Proc* 2008;83(11):1200-2.

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**025 TITLE: Oregon Blueberry Promotion in India – *Final Report (Approved 1/30/12)***

**CONTACT: Amanda Welker, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [awelker@oda.state.or.us](mailto:awelker@oda.state.or.us)**

**PROJECT SUMMARY**

Oregon recognized India as an important emerging market for specialty crops. After an initial trade mission to the Indian market, Oregon berries were the specialty crop products recognized by our trade contacts with excellent market potential. Berries do not grow well in the Indian subcontinent and are new flavors for the Indian palate. There is also a good fresh fruit window during the Oregon berry season, as the local fruit in the Indian market during the hot summer is limited. Test shipments in the previous season 2009 season were well received, and sold out of product quickly.

The Oregon Department of Agriculture (ODA) was asked to help support the promotion of Oregon blueberry sales in a premier Indian hypermarket chain, Hypercity, for a three-week period during the season. This project expanded the volume of product offered in more stores and promoted blueberries to the Indian consumer as a delicious and healthy food choice. Consumers were introduced to the blueberry with in-store sampling and product demonstrations.

**PROJECT APPROACH**

Hypercity offered the store space for display and increased its orders of Oregon blueberries for the promotion. During the grant, Hypercity and an in-market consultant coordinated the activities to promote Oregon blueberries through in-store sampling and product demonstrations. The Indian team put together recipe cards, Point of Sale (POS) marketing collateral materials, and provided consumer education materials emphasizing the health benefits of the blueberry. Special care was taken to work closely with each store manager to determine which days promotions should be held in each store in order to maximize foot traffic and product exposure.

The promotion in India took place during the peak of Oregon's blueberry season in August and September, 2010. Oregon Blueberries were sampled by visitors and consumers to the select store locations in the Hypercity chain. Sampling allowed consumers to try a new product and taste blueberries which are a new fruit to most Indian households. These tasting sessions were conducted three times a week across four targeted stores in Mumbai, Bangalore, Hyderabad and Amritsar. The tasting sessions resulted in increased sales of blueberries. Orders surpassed initial estimates, so much that supply ran short and sales could have continued another three weeks.

## **GOALS AND OUTCOMES ACHIEVED**

There were three major goals outlined for this project:

To increase sales, visibility, and awareness of Oregon Blueberries.

To educate Indian consumers about the nutritional benefits of eating blueberries.

1. To provide recipes to consumer for the application of blueberries in their own kitchens.

The outcomes for this promotion project met all three goals. We saw an increase in sales of Oregon Blueberries and the blueberry promotion worked very well in all the stores. The Bangalore location saw the largest impact on sales during the promotional time period. The Bangalore store saw a 60 % increase during the promotion days over days without promotion. All other stores saw 30– 50 % growth in sales during the promotion if compared to days' sales without promotion. More shelf space was provided to Oregon Blueberries after seeing the jump in sales, and ODA received a letter from Hypercity Fresh produce category manager stating that sales surpassed his estimates and he will plan to quadruple his order in 2011 from 2010 orders. Projected purchases for 2011 were estimated at \$80,000.

Collateral materials were distributed to store consumers promoting the health benefits and recipe applications for blueberries. Demonstrators reported that the recipes and health information were quite popular and that consumers were looking for additional ways to consume and incorporate blueberries into the traditional Indian diet.

## **BENEFICIARIES**

This project sourced blueberries from approximately 15 blueberry farmers. Oregon has over 300 blueberry farmers who send product to processors and packers to exporters across the state. As sales volumes increase to India, so will the number of farmers that will benefit in future years.

Hypercity is also expanding into seven additional markets in India which will expand their purchasing power. Additionally, in the ultra-competitive Indian retail market, other retail chains are likely to follow the patterns of Hypercity and we have had more interest from Indian importers for next year's crop of blueberries. We also believe that Oregon's good reputation gained through the success of this promotion will benefit other specialty crop growers in Oregon. We are picking up additional inquiries for Oregon cherries and pears as a direct result of the marketing of Oregon blueberries.

## **LESSONS LEARNED**

The retail market in India is unknown and quickly emerging. This project is helping ODA and Oregon's specialty crop industry gain a better understanding of the complexities in the market. Aggressive competitors with more funding are appearing with greater frequency. Consumer expectations are changing which require constant monitoring and brand loyalty is decreasing due to aggressive pricing wars and bait and switch tactics.

Purchases for this initial project were too conservative and unfortunately, stock of blueberries ran short due to a lack of a developed supply chain. The cold chain in India also remains a challenge for fresh products. We will continue to work with Oregon exporters and Indian importers to improve and expand measures needed to maintain freshness along the chain of custody.

Consumers commented that a limited variety in range of blueberry products were available with blueberries as the key ingredient. We see this interest as an opportunity to introduce more value-added blueberry products in the market.

Despite these challenges, our results help us confirm that in-store promotions served as an effective marketing attempt to inform, persuade and remind the prospective buyers about new products. The promotion also served as an effective communications tool to help establish a dialogue and build relationships with the growing middle class Indian customer.

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**026 TITLE: Effects of Postharvest Treatment in Reduction of Salmonella and E. coli surrogates in Hazelnuts – Final Report**

**CONTACT NAME: Laura Barton, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [lbarton@oda.state.or.us](mailto:lbarton@oda.state.or.us)**

**PROJECT SUMMARY**

In 2010, 70% of Oregon's \$67 million hazelnut farm gate value was sold in-shell. Unfortunately, the surfaces of hazelnut shells can harbor potentially harmful microorganisms. A 2009-2010 hazelnut recall due to Salmonella detection followed by a multi-state hazelnut associated outbreak of E. coli O157:H7 led Oregon hazelnut processors to seek sanitizing methods for the 2011 fall harvest. A Specialty Crop Grant funded study identified four U.S. Food and Drug Administration (FDA) food approved chemicals that were effective in reducing natural microbial populations.

FDA requirements for some tree nut processors to achieve at least 4-log reductions of Salmonella spp. during their sanitizing procedures led to this second (continuing) project to determine the ability of the previously identified chemicals: peroxyacetic acid, sodium hypochlorite, and acidified sodium chlorite, to produce at least a 4-log reduction of Salmonella and E. coli O157:H7 on in-shell hazelnuts, using pathogen surrogates.

**PROJECT APPROACH**

The project was designed and conducted by an Oregon State University graduate student after consulting with Oregon hazelnut processors. Lab work was conducted in cooperation with and use of Oregon Department of Agriculture (ODA) laboratories at the Oregon State University Food Innovation Center (FIC), with project work oversight supervised by FIC director and project managed by ODA staff.

The project was conducted in two phases. In Phase 1, freshly harvested hazelnuts were exposed to water, sodium hypochlorite (25ppm and 50ppm), peroxyacetic acid (80ppm and 120ppm), and acidified sodium chlorite (990ppm). In Phase II, clean hazelnuts were inoculated with high levels of Salmonella panama cells, then exposed to water, sodium hypochlorite (25ppm and 50ppm), peroxyacetic acid (80ppm and 120ppm), and acidified sodium chlorite (450ppm, 830ppm, 1013ppm).

The post-treatment log population means were analyzed and compared to untreated control samples within each phase. The amount of excess dirt had a significant effect on the population reduction capability of all of the treatments due to the physical removal of microorganisms by the treatment sprays. The bactericidal activities of the chemicals were best represented during the Phase II study when the chemical tests were conducted on hazelnuts lacking excess dirt. The

acidified sodium chlorite treatments consistently resulted in the highest reductions in log population means, regardless of the amount of excess dirt on the shell surfaces.

Other specialty crop industries may benefit from the research foundation work of this project to reduce potential pathogens in final products.

An Oregon grower/processor provided the hazelnuts, which were large but of undetermined variety. The hazelnuts were gathered during the third week of September (Testing Round 1) and the second week of October (Testing Round 2), 2011. The hazelnut shells were visually inspected for cracks, holes, and other abrasions to ensure that the shells were undamaged.

#### Hazelnut Testing Round 1 (before rain)

Testing Round 1 (TR1) was conducted on hazelnuts gathered early in the 2011 harvest while the ground was still relatively dry. The Rinse Only, Water and all of the chemical treatments resulted in population means that were significantly different from the Control population mean. However, there was no significant difference in total microbial populations between hazelnuts treated with a water rinse and water spray (Water) or with a water rinse as documented in detail in the attached report.

#### Hazelnut Testing Round 2 (after rain).

Testing Round 2 was conducted on hazelnuts gathered later in the 2011 harvest after the rain had caused the ground to become muddy. This increased the total microbial population compared to TR1 due to the excess dirt attached to the hazelnuts.

All of the treatments groups significantly lowered the microbial population on the surfaces of the hazelnuts compared to the untreated Control. The NaOCl-50ppm, PAA-120ppm, and ASC-990ppm treatments were the only three treatments to show significant population reductions compared to the Control, Rinse Only, and the Water

#### CONCLUSION (Phase I & Phase II)

Both Phase I and Phase II show that acidified sodium chlorite consistently resulted in the largest average microbial population reductions compared to the other chemical treatments. The peroxyacetic acid treatments resulted in the second highest log population reductions, and the sodium hypochlorite resulted in the lowest log population reductions. Phase I results indicated that all of the chemicals produced relatively similar population reductions and that the chemicals were not significantly more effective than the Water treatment.

In addition, the Rinse Only and Water treatments resulted in significantly lower population means than the Control. Conversely, the Water treatment in Phase II was not significantly different than the Control, the chemical treatments were significantly more effective than the Water, and the efficacy of each of the chemical treatments was significantly different from most

of the other treatments. The observations from Phase I imply that the amount of excess debris on the surface of a hazelnut shell has a strong effect on the total microbial population, and that the population can be significantly reduced by removing the debris. Phase II observations show that the chemicals used in this study have the ability to reduced bacterial populations by significantly different amounts, and that acidified sodium chlorite was significantly more effective than any of the other treatments.

The project researcher concluded that the best processing method for treating hazelnuts would involve removing as much visible dirt as possible by vigorously rinsing the nuts with clean water (multiple rinses may be necessary), letting the excess water drip off or removing it with a blower, then spraying the nuts with at least 1,000 ppm acidified sodium chlorite.

A fully detailed report of the project methodology and results, including graphs is attached.

### **GOALS AND OUTCOMES ACHIEVED**

The project set out to investigate the effects of sanitizers on microorganisms on the surfaces of in-shell hazelnuts. Specific sanitizers were investigated for potential use in the wash step that takes place during hazelnut processing. An ideal hazelnut processing procedure would yield a 4-5 log reduction of Salmonella (Industry Handbook for Safe Processing of Nuts, 2010) on the surfaces of post harvest in-shell hazelnuts from the time of harvest to the end of processing. This research project did achieve reductions of microorganisms on the surfaces of in-shell hazelnuts using specific sanitizers. Methods and quantities of specific readily available food-approved sanitizers needed to achieve microorganism reductions were documented and shared with Oregon hazelnut processors in time for the 2012 harvest.

However, there are still many further processes and questions regarding microorganism reduction that need to be addressed.

Exploratory research has shown that drying may also significantly reduce microbial populations. A study of the effects of various drying techniques (e.g. temperature, time, depth of dryer, etc.) on the microbial population on hazelnuts would expand knowledge of the second main component in hazelnut processing. A complete research investigation of the combined effects of specific sanitizers and drying methods would demonstrate the maximum potential of current hazelnut processing procedures for reducing the microbial population on the surfaces of hazelnut shells.

## **BENEFICIARIES**

With 70% of Oregon's total \$67 million hazelnut industry sold in-shell, the reduction of harmful microorganisms through sanitizing methods identified in this project can benefit a significant percent of the Oregon hazelnut industry.

## **LESSONS LEARNED**

The project investigator reported having problems working with the pathogen surrogates, which delayed the start of the project and required long hours in the lab to make up for lost time. Timely cooperation and input from the hazelnut processors, cooperation from the Oregon Department of Agriculture lab staff and the diligence of the project investigator helped this project conclude in time for the 2012 harvest.

All of Oregon's hazelnut handlers and wash line operators were emailed copies of the results, approximately 70 people, which was felt to be a better way to reach the industry instead of in a newsletter. In addition, the principal investigator also attended two industry meetings where she explained her results and answered questions about the project. Thus, 100% of those involved in the processing of Oregon hazelnuts received the information.

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**027 TITLE: Oregon Fresh Blueberries to Korea: Certification Program Implementation and Development – Final Report**

**CONTACT NAME: Lindsay Eng, Oregon Department of Agriculture**

**PHONE: 503-872-6636**

**EMAIL: [leng@oda.state.or.us](mailto:leng@oda.state.or.us)**

**PROJECT SUMMARY**

In 2011, Oregon fresh blueberries were granted entrance into South Korea under a negotiated protocol for traceability, pest and disease concerns. This was the first market access for any fresh blueberries from the United States into South Korea and a tremendous opportunity for the Oregon blueberry industry.

.In order to assist in this effort for the first year, this project was designed to facilitate the partnership between the USDA Animal Plant Health Inspection Service (APHIS), the Oregon Blueberry Commission and industry members, and the Oregon Department of Agriculture to ensure that all program requirements were met and that Oregon was able to have a successful first shipping season to South Korea and protect the ability to ship into this potentially lucrative export market.

**PROJECT APPROACH**

The ODA and Oregon Blueberry Commission began hosting workshops on the Korea program in April 2012. Multiple workshops were held to address the following issues: trapping guidelines and densities, survey protocols, phytosanitary issuance and audit procedures for packinghouses, and maximum residue levels. At these workshops, it was made clear that growers and packers were required to sign compliance agreements and participate in all aspects of the program in order to have product certified to ship to Korea.

Additionally in April 2012, ODA plant health staff conducted field surveys to certify the absence of *Phytophthora ramorum*, Tobacco ringspot virus, and Tomato ringspot virus across the 10 major blueberry producing counties in Oregon. From those fields surveyed, only 4 suspected samples were taken and analyzed at the lab. There were no findings of disease within the surveyed counties. In July 2012, ODA phytosanitary inspectors began conducting packinghouse pre-audits and phytosanitary certification for Korean loads. These inspections continued through September.

Also in July 2012, Dr. Keum Hee Lee from Korea's Quarantine and Inspection Agency (QIA) visited Oregon to sign off on the program's compliance with Korea's expected phytosanitary requirements for pest and disease management, shipping documentation, trapping protocols and overall oversight. Dr. Lee spent five days touring Oregon packing facilities and certified blueberry production areas.

To round out the project, in November 2012, two ODA officials and two industry representatives traveled to South Korea for a post-shipping season mission to explore the success of the first shipping season, the quality and condition of fruit as perceived by the Korean buyers as well as perform governmental reconnaissance on any compliance issues that arose during the year. The delegation was in Seoul for five days and met with governmental and industry representatives. Three additional industry members joined the delegation with their own funds. The participants were as follows:

James Cramer, Director of Market Access and Certification Programs, ODA

Lindsay Eng, Certification Development & Programs Manager, ODA

Bryan Ostlund, Executive Director, Oregon Blueberry Commission

Paul Norris, President, Norris Farms

Sandy Norris, Norris Farms

Gage Thompson, Packinghouse Manager, Norris Farms

The itinerary of this mission is attached for reference.

Many of the importers that the above group met with were very interested in importing higher volumes of fresh blueberries from Oregon, but were struggling with seemingly low demand in the first year among Korean consumers. This could be due to the fact that the domestically produced Korean fresh blueberry industry experienced their largest production year ever and domestic blueberries were still in retail stores for up to a month after Oregon blueberries began arriving. In most cases, the Korean consumer will buy domestically produced product before purchasing imported product.

Another potential limiting factor on the market for fresh Oregon blueberries expressed by many importers that handle both fresh and frozen product was that Korean consumers have gotten used to purchasing frozen blueberries and eat them very regularly. They cost less at retail and last longer than fresh blueberries. The import market for frozen blueberries in Korea has been growing at 30% per year. This may affect potential growth opportunities for fresh imports in the future.

## **GOALS AND OUTCOMES ACHIEVED**

The Oregon Department of Agriculture, in cooperation with the Oregon Blueberry Commission, expected to certify 9 packers and 20+ growers under the compliance agreement to ship fresh blueberries to Korea for the 2012 season. Targets were exceeded in this area, as 9 packers and 42 growers certified 271 fields in compliance with the Korean protocol.

Of the certified packers, 8 of the 9 companies sent at least one shipment of fresh blueberries to the Korean market in 2012. No product in these shipments was held up because it did not meet Korean phytosanitary requirements. In fact, during the post-shipping season mission to Seoul,

both the Seoul USDA APHIS office and Korea's QIA reiterated that they saw no potential problems with Oregon producers meeting the requirements of the protocol.

Additionally, Dr. Lee, who traveled to Oregon in July 2012, had no significant findings of noncompliance after her weeklong visit, during which she visited 5 packinghouses as well as production fields from 14 of the certified growers in the program. Dr. Lee was very appreciative of the hard work and precision with which the Oregon blueberry industry was approaching this new market.

## **BENEFICIARIES**

Total shipped product from the 8 certified packers to South Korea during the 2012 season amounted to nearly 489,000 pounds. Most of the shipments were small in size, however the total volume shipped represented just over \$1.1 million of new sales to the Oregon blueberry industry.

The success of the inaugural 2012 season and the lessons learned by blueberry growers and packers participating in this market will benefit the entire US blueberry industry as a whole in the future. As Oregon succeeds in meeting phytosanitary restrictions under this negotiated protocol, other regions of the US may have the opportunity to develop similar programs and continue to grow the market.

## **LESSONS LEARNED**

The first season of Oregon Fresh Blueberries to Korea was extremely successful and the blueberry industry in Oregon is very excited about the potential for a new market. There are some concerns, however, about the efficacy of growing this market with a 40.5% tariff (to be eliminated over the next 10 years) and the potential size of the market for fresh blueberries.

During the post-shipping mission, while all buyers that were consulted were happy with the quality and condition of fruit they received, it was overwhelmingly indicated that a marketing or promotional program would need to accompany the fruit in order to increase awareness of the new product appearing on store shelves.

The Oregon Blueberry industry had made a concerted decision during the inaugural shipping season to not include any promotions or marketing materials in the retail outlets due to political concerns existing with Korean domestic blueberry growers. Most retail buyers agreed that the Korean blueberry industry, would likely not cause market disruptions if US blueberries were marketed in Seoul retail outlets, even if there may be some overlap in blueberry seasons in Oregon and Korea.

After receiving this feedback, the Oregon blueberry industry will likely develop a promotional program to increase awareness of US (Oregon) blueberries in the marketplace to drive higher demand and sales next year.

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**028 TITLE: Oregon Berry Growers Food Safety Training and Education – *Final Report***

**CONTACT NAME: Laura Barton, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [lbarton@oda.state.or.us](mailto:lbarton@oda.state.or.us)**

### **PROJECT SUMMARY**

In 2011, several e. coli 0157 caused illnesses and one death attributed to fresh market Oregon strawberries brought the West Coast berry commodity commissions together to initiate high priority efforts to minimize pathogen contamination of berries. This project addressed the urgency of initiating food safety training for Oregon berry pickers and all sized farms prior to the 2012 berry season.

Oregon's primary berry industries (blueberry, caneberries and strawberries) formed a food safety team to address a proactive approach to minimizing future berry related foodborne illnesses. They prioritized providing food safety training for all berry growers and berry harvest pickers and crew leaders, regardless of farm size. The Oregon Blueberry Commission estimated that 25% of Oregon's blueberry growers have GAP certification, and while there are some other programs that might include food safety practices, this was an indicator that the majority of berry growers, small or large, selling fresh or for processing, may need training, leaving consumers vulnerable as well as threatening berry farmers futures.

The project conducted outreach to bring food safety training to the attention of growers throughout Oregon and provided pilot food safety trainings. The trainings were designed to appeal to farm direct selling growers as well as growers and berry picking crews for berries sold into larger markets and to the processing sector.

The project was not been funded by another Federal, State or private grant program although it was supported with in-kind staff time donated by the Oregon Department of Agriculture and in-kind time and funding from the three Oregon berry commissions. Guidance was also offered by the California Strawberry Commission's food safety team, as they've conducted in-field food safety trainings for California berry growers and workers for a number of years. Project funds were used to print California Strawberry Commission materials developed specifically for trainings, and licensing fees for use of the materials were paid for by the three berry commissions.

### **PROJECT APPROACH**

The berry food safety committee met several times in early 2012, establishing a budget and finalizing plans for conducting pilot food safety trainings in strategic locations. The committee prioritized that activities be industry driven, trainings held at on-farm locations if possible and a 'non-threatening' English/Spanish speaking trainer be identified, to increase acceptance and

successful attendance of the trainings. Identification/recruitment of an available qualified Spanish/English speaking food safety trainer was a challenge as was finding on-farm sites, so a few other 'neutral' central locations, a grange hall and an Oregon State University research site were included. A schedule of training dates and locations was successfully finalized and publicized prior to the 2012 berry picking season through berry commission e-mail lists, a press release sent out by the Oregon Department of Agriculture and distributed to the farm direct listserv maintained by Oregon State University. While industry driven, Oregon Dept of Agriculture staff assistance and support helped drive the project.

The project coordinator, an Oregon Department of Agriculture (ODA) staff, coordinated initial meetings and some of the outreach. Training sign-ups, attendance, collection of the pre/post tests and site set ups were coordinated by an ODA staff 'on loan' from the food safety division. Eight pilot trainings were conducted in various Willamette Valley locations, all conducted by the same bi-lingual trainer, to provide consistency (English and Spanish held separately on the same day at the four sites). A total of 197 people participated in the trainings, exceeding the benchmarked target set of 100 people:

4-17-12 Spencer Creek Grange, Eugene. Six Attendees: 5 farms, 1 educator – (English training: 5 farms, Spanish training 1)

4-18-12 Unger Farm Store, Cornelius. 79 Attendees: 75 farms, 1 farmers market, 1 school district, 2 labor contractors, 1 OSU extension (Eng training: 38 people, 26 farms; Spanish training: 32 people, 14 farms, 1 other)

4-19-12 OSU N. Willamette Research Stn, Aurora. 65 Attendees: 1 farmers market, 2 labor contractors, 62 farms (Eng: 47 people, 30 farms, 1 other; Spanish: 8 farms, 11 people)

5-2-12 Riverbend Organic Farm, Jefferson. 47 Attendees (Eng: 19 farms, 27 people; Span: 9 farms, 20 people)

Two originally proposed ODA Commodity Inspection Division staff led trainings for berry harvest crew supervisors, foremen and labor contractors were not held, as the berry food safety committee wanted industry driven trainings and the target groups able to attend the eight scheduled trainings.

Food safety trainings outreach went to Oregon growers, berry harvest field supervisors and labor contractors through collaborative efforts of the berry commissions, a press release "story of the week" from the Oregon Department of Agriculture to their established media and associations contacts; regional 'buy local' groups; the farm direct market e-mail listserv maintained by Oregon State University in collaboration with the Oregon Farmers Markets Association. The trainings were offered free of charge to attendees, to encourage and maximize attendance. Attendees received a 'certificate of completion' to document that they received some training or review of food safety practices.(see attached).

Materials utilized for the trainings included copyrighted food safety manuals created by the California Strawberry Commission and required a legal agreement and licensing fees paid for each manual (1000 were printed, with enough leftover to cover trainings for at least one or possibly two more seasons of trainings). Each attendee was given a manual to take home at no cost to them. Other training materials included flip charts that were also created by the California Strawberry Commission and they donated several of the flip charts for use at trainings.

Pre and post-training quizzes were created by the bi-lingual trainer, collected from attendees were shared with the berry food safety committee when they reconvened in the late fall, 2012. Participant comments and observations at trainings will assist them with their 2013 trainings, for which they received another Specialty Crop grant.

## **GOALS AND OUTCOMES ACHIEVED**

The first year number of four to six pilot food safety trainings was exceeded, with eight training opportunities (although only one person attended the first training for Spanish speakers).

197 total berry farmers, berry harvest field supervisors or labor contractors supervisors and picking crews participated in the pilot trainings, exceeding the target goal of 100 berry farmers, berry harvest field supervisors or labor contractors.

The majority of food safety training session attendees took a pre and post training quiz to track food safety knowledge prior to the training and after the training. Information was tabulated and shared with the berry industry food safety team and project coordinator. The majority of attendees improved their self administered quiz knowledge of food safety based on the responses recorded before and after the trainings, but statistical analysis of responses was not done.

A desired long term goal is that all Oregon berry growers, regardless of size will establish and implement a berry picking food safety program on their farms. The pilot trainings offered in 2012 were a worthy and successful first year effort, exceeding targeted attendance and number of trainings offered, and favorable responses from attendees. The berry food safety committee is continuing to meet, continuing communications with other West Coast berry groups, and planning for second year trainings is underway. The berry food safety project received funds from the USDA Specialty Crop program to continue and expand the food safety trainings beyond just berry growers, and the Oregon berry commissions will continue to support the trainings.

## **BENEFICIARIES**

Beneficiaries of this project include thousands of potential consumers who purchase and consume Oregon berries, several hundred growers and berry processors and their employees. Oregon berries represent 20, 200 acres (2009 production values reported in the ODA Agripedia), \$108,498,000 farm gate value. The OR Raspberry & Blackberry Commission represents 200 growers and 14 processors; OR Strawberry Commission represents 100 growers and 10

processors; the Oregon Blueberry Commission reports 350 growers. Some of the growers grow multiple berry varieties, so would be counted twice in the overall number of berry growers, but there are also an unknown number of small berry famers selling directly to consumers who currently do not report to the berry commissions.

While the majority of Oregon grown caneberries and strawberries are processed, with the growth of farmers markets and farm direct sales, and the popularity of fresh berries, any foodborne illness associated with berries can have a drastic impact on any sized berry grower as well as the processors who utilize berries.

## **LESSONS LEARNED**

This project was successful on a number of levels: It brought together all of the Oregon berry groups, and included cooperation and communication from ‘competitive’ states to the north and south. Help and guidance was generously offered and given by the California Strawberry Commission.

There were some challenges: identifying and procuring a qualified bi-lingual trainer and strategic locations for trainings; potentially adjusting the times that English and Spanish trainings be held in the future to minimize disruption of farm activities, ie. hold sessions concurrently rather than one in the morning and one in the afternoon, if an additional qualified trainer can be identified.

It was very helpful for the success of this time sensitive project to have a dedicated staff person able to handle training site logistics, oversee the printing of food safety manuals, receive the flip charts, work with the trainer and sign up and track attendees, collect the pre and post training quizzes and report to the project coordinator and the berry food safety committee.

While the majority of attendees improved their self administered quiz knowledge of food safety based on the responses recorded before and after the trainings, the project didn’t track implementation or changes made in on-the-farm food safety practices of berry pickers and farm crews, which will need to addressed in the next year’s trainings.

A couple of photos from the training held at the North Willamette Research station is attached.

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**029 TITLE: Building Community Support for Oregon Specialty Crop Agriculture Through Oregon County Fairs – an Outreach and Education Project - *Final Report***

**CONTACT NAME: Laura Barton, Oregon Department of Agriculture**

**PHONE: 503-872-6600**

**EMAIL: [lbarton@oda.state.or.us](mailto:lbarton@oda.state.or.us)**

**PROJECT SUMMARY**

Oregon county fairs origins came from an agricultural base, are held yearly in every one of Oregon's 36 counties, and had 1.5 million visitors in 2011. Yet many of Oregon's 36 fairs currently offer little connection to the commercial agricultural base in their communities. Agriculture plays a key role in the state's economy, but with many specialty crops exported outside of local communities, crops aren't readily visible to non-farmers. Fewer members of farming families are engaging in farming activities, farm lands are increasingly threatened by urban encroachment, and available state and local financial resources to support farming are shrinking. Even in communities where agriculture is still a main income generator, first-hand knowledge of and support for farming challenges has diminished. Building county fair goes connections with local commercial specialty crop agriculture/farmers and improved knowledge of the importance of agriculture to the state's economy to assure continued support and create sales opportunities for Oregon specialty crops was the impetus for this timely project.

The project funds supported outreach to the fairs and created interactive exhibitry telling the story of Oregon specialty crop agriculture. Outreach goals included helping fairs learn about potential agricultural partnerships, improve fairgoers knowledge about local and statewide specialty crops/producers, and to encourage fairs to enhance their activities and help connect fair goers to purchasable Oregon specialty crop agricultural products.

**PROJECT APPROACH**

The project was led by Oregon Department of Agriculture (ODA) marketing staff, with cooperation from the Oregon County Fair Commission (OCFC) and Oregon Fairs Association (OFA). A contractor was selected to design and create an exhibit "Telling the Oregon Agriculture Story". Exhibit parameters included featuring the top 20 specialty crops, all the regions of the state, importance of local, regional and global markets, farmers stewardship role and that the exhibit itself be lightweight, easy to assemble, transportable, and have elements that could be individualized for specific fairs, regions of Oregon, interactive and appropriate for all ages of viewers.

Shortly after the exhibit specialist was hired, the project manager gave a project presentation at the Oregon Fairs Association (OFA) spring meeting, April 12-14, 2012, attended by a majority of the 36 fairs. Due to the limited time between selection of the exhibit specialist and the spring meeting, a visual representation of the exhibit was not yet available. A PowerPoint presentation

featured examples of showcasing agriculture at county fairs in creative ways. Also shared were results from a brief survey of potential agriculture partners to establish their interest and abilities to provide materials, staff booths at fairs or provide other resources and the fairs were polled for their interest/ability to host the exhibit during 2012. Networking with fair managers was of value to the project as well, as it gave the project manager the opportunity to meet many of the fair managers in person.

Following the spring meeting, a follow-up survey was sent to all the fairs, to make sure that those who were not present at the spring meeting had an opportunity to be more aware of the exhibit and express their interest to host the exhibit during the 2012 season.

Ideally, the project presentation would have been made a few months earlier at the winter OFA meeting, included a schematic of the exhibit, to give fairs more complete knowledge of how the exhibit might be suited to their individual fair sites, and provide more time for fairs to consider hosting the exhibit, address staffing and scheduling logistics. 11 fairs out of the 36 indicated interest in hosting the exhibit in 2012, including one early season fair held before the exhibit was completed. Five fairs schedules overlapped by at least a day or were too distant from other interested fairs to be able to arrange the exhibit reaching all interested fairs. After communicating with the 11 fairs, the exhibit was scheduled at seven county fairs, listed in order of their fairs: Marion, Jackson, Coos, Curry, Benton, Umatilla and Clackamas. Umatilla later canceled hosting the exhibit when their fair board wouldn't make an exception to their vendor policy requiring participation for the full run of their fair. At the late date of their cancelation it was not feasible to schedule another fair after Clackamas, so the exhibit went to six fairs in 2012.

### **GOALS AND OUTCOMES ACHIEVED**

Despite a project start date delay due to state RFP processes and paperwork requirements to hire an exhibit specialist, the selected designer completed/delivered the majority of the exhibit pieces (the four pull up banners, five stand-alone elements, and customized fact sheet on Marion County) in time for the first fair targeted, in July. The trivia wheel was delivered following the exhibit roll out at the first fair; wooden stands to stabilize the stand-alone elements were created after the exhibit traveled to the first five fairs when it became apparent that outdoor windy conditions and uneven fair grounds caused pieces to fall over. The stand-alone elements were also bumped and bent from strollers or kids so the stands helped, even though they were only available at the last scheduled fair.

The exhibit was requested for 11 fairs, one short of the goal, but was only able to be displayed/used at six fairs, due to overlapping fairs and logistics of exhibit delivery/transportation. An additional non-hosting fair (due to overlapping schedules) enhanced their Oregon agriculture activities after seeing the PowerPoint presentation and made a connection to one of the commodity group partners. The exhibit was enthusiastically received at the six hosting fairs. The fair managers/staff were very accommodating and helpful and delighted

to have the exhibit at their fairs, even when the exhibit wasn't able to be there for the entirety of the fair.

The project manager personally tracked 647 fair goers of different ages answering a question about Oregon agriculture before and after viewing the exhibit. Tracking was accomplished with counted small sample bags of Oregon hazelnuts donated by the Hazelnut Marketing Board, given out after exhibit viewers answered a question about Oregon specialty crop agriculture. 85% of the questions were asked when fair goers spun the 'trivia wheel' (see attached photo). Those who didn't have the correct answer were directed to the exhibit and asked the question again after viewing the exhibit. The remaining 15% were asked questions as they approached the exhibit and then after they read/looked at it. 99% of the 647 gave the correct answer to the question after reading/reviewing the exhibit, while a few (mostly small children) still didn't give the correct response. An unknown additional number of people saw the exhibit at mostly unstaffed fairs (Benton) or when the project manager was not able to staff the exhibit for all days of each fair (Marion, Clackamas). This method of tracking before and after responses did not allow collection of demographic data, but was accurate in terms of numbers, as the project manager had strict control over the sample bags of hazelnuts and asked the questions. A very few samples that were just 'given away' were not included in the tracking. Many kids wanted to spin the wheel multiple times and answered different questions without wanting a bag of hazelnuts at all,, they simply enjoyed the interactive component of spinning and answering questions! Those were also not included in the tracking, to be really accurate.

Based on numerous comments from fair goers, the exhibit was well received (and those who spun the trivia wheel, really enjoyed learning about and answering the questions about Oregon agriculture). The hazelnut samples were also well received and used to impart further information about one of Oregon's specialty crops. Every single one of the 647 people (or a parent or accompanying adult, if a bag was given to a small child) learned that the hazelnut is the Oregon State Nut, that there are 650 hazelnut farms commercially growing hazelnuts, that they are high in anti-oxidants and Oregon is virtually the only US state growing them! Some people also learned that the US per capita consumption of hazelnuts is only three to four nuts and that China imports about 70% of all in-shell hazelnuts exported. (Anecdotally the marketing efforts of Nutella chocolate hazelnut spread was a factor for recognition of hazelnuts by some fair goers).

The Oregon County Fair Commission (OCFC) visited/observed 14 fairs (four less than the project performance measure): Baker, Benton, Crook, Grant, Jefferson, Malheur, Multnomah, Lake, Sherman, Tillamook, Union, Willowa, Washington and Yamhill, and tracked number of fair activities, including agricultural exhibits, along with some photos, but did not capture number of participants for new or specific specialty crop related activities. The two primary reasons for falling short of the performance measure were lack of time to properly brief the commissioners on expected data collection and the commissioners lack of time to gather more

specific agriculture related information, as their reports tracked all activities and fair practices. The OCFC didn't ask for any project funds originally allocated to help cover their travel to fairs.

Because this project was a 'zero baseline' project, collecting responses of knowledge learned about Oregon specialty crop agriculture from 647 measured participants is a starting place for the future. Fairs who hosted or observed the exhibit and communicate their positive reaction about the exhibit with their peers started a 'buzz' at a late summer gathering of the fairs and will help build demand for hosting the exhibit next season.

The project manager is busy scheduling presentations about the new exhibit at various commodity commission meetings, and is on the agenda to make a presentation and showcase the exhibit at the Oregon Fairs Association 2013 winter meeting (taking place in January, 2013). She is also working with ODA colleagues to address some of the logistical issues for future requests in using the exhibit, as it is anticipated that several more fairs will request hosting the exhibit in 2013 and beyond. From one commodity group presentation made as of the date of writing this report, it is also anticipated that some of the commodity commissions will initiate activities at fairs and other venues to better connect their industry with the public, including sales, which will meet another goal of the project.

### **BENEFICIARIES**

The beneficiaries of this project include all 20 specialty crop industries highlighted in the exhibit, in addition to non-specialty crop agriculture partners who paid to have their crops added to the main exhibit (and other non-specialty crop commodity groups who may choose to invest in adding exhibit components in the future). Other groups who may benefit from this project include retailers or foodservice operators who collaborate with agriculture partners to enhance fair activities. An example would be using the trivia wheel to provide coupons for discounted purchases of Oregon specialty crop products at their stores if answering trivia questions correctly. Or fair vendors who feature Oregon crops, such as a vendor who sold Marion berry shortcakes at the Clackamas fair, could be approached by the berry commissions or fair staff and tied into contests or answering trivia questions on Oregon berries. (These suggestions and ideas are being shared at scheduled and future anticipated presentations).

### **LESSONS LEARNED**

The developed exhibit met the goals of being lightweight, attractive, interactive, had great visibility and was highly praised by the fairs and fairgoers who saw it. However, due to the short time-line to launch and complete the exhibit in time for the 2012 fair season, there were several logistical issues that limited the number of fairs able to host the exhibit in the first year: distances between fairs and practical ways to transport the exhibit, high shipping costs and initial storage boxes cumbersome/awkward to handle; overlapping fair schedules; figuring out staffing or who might be responsible for setting up, manning the exhibit at fairs; stronger involvement from potential agricultural partners. Stand-alone elements of the exhibit, while lightweight, were also

fragile and required additional stability in the form of stands due to wind when set up outside, being bumped into by people not noticing them, and in some cases, uneven or sloping ground.

Ideal exhibit locations were not always offered; one fair placed the exhibit in a rather isolated spot that limited the number of people who stopped to look at it.

Ideally, the project would have spanned two years, with the first year dedicated to a more thorough understanding of fairs physical layouts, and where each fair might host the exhibit, whether a dedicated space or pieces incorporated into existing areas, such as the floral, nursery, or vegetable display areas, or teamed with community health or the Oregon State University Extension Master Gardner program tables/booths. Additionally, developing a better plan and system in place for the exhibit to travel between fairs and/or ways that the fairs could accommodate the exhibit when their fairs overlapped with others fairs. Gathering a list of each fair's vendors prior to rolling out the exhibit, especially others who have established booths or activities at fairs and would be wonderful to connect with and then helping fair volunteers or specialty crop agriculture commissions more proactively reach out to establish potential partnership and sales opportunities at fairs or generated afterwards.

This data collection and observations at fairs would have then helped create the exhibit pieces to roll out in year two, and been better suited to adapting to different physical layouts, better suited for transport, or shipping. Lightweight and easy to set up was important, but fragile and more susceptible to damage was definitely a limitation and in hindsight, heavier more durable materials might have been a better choice. The exhibit designer replaced two of the stand-alone pieces that were damaged and absorbed the cost of the replacements, and an additional broken stand-alone that had some hard-to-read trivia questions was also replaced.

Also due to the short lead time on this project, no partners or fair staff were identified to staff the exhibit at fairs, therefore the number of fairs that hosted the exhibit was limited to the project manager's schedule and ability to transport, set up, staff, take down and remove the exhibit, which will not be feasible in the future.

On a positive note, with the project manager personally transporting, setting up the exhibit and being at fairs longer than originally planned, insights were gained and ideas to share with the fairs and future potential agriculture partners. The project manager is setting up presentations at forthcoming agriculture industry winter meetings and working with ODA staff to establish a better system to store, manage and monitor exhibit use, including policies for requests, and anticipates many more fairs and the communities will improve connections to their agricultural roots in future years.

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**030 TITLE: Celebrating Oregon Agriculture: Bring it Home! – Final Report**

**CONTACT NAME: Michelle Markesteyn Ratcliffe, Oregon Department of Agriculture**

**PHONE: 503.872.6620**

**EMAIL: [mmarkesteyn@oda.state.or.us](mailto:mmarkesteyn@oda.state.or.us)**

**PROJECT SUMMARY**

Over the past decade, the Oregon Department of Agriculture has increasingly focused market development activities on the emerging institutional markets within the state and region. Increasingly, pre-schools, K-12 schools, colleges, health care facilities, and other institutions are interested in buying, promoting and serving Oregon produced specialty crops to their customers. Targeting bigger institutional buyers helps develop and stabilize local markets, while focusing on the youngest consumers sets the stage for cultivating lifelong consumers of Oregon specialty crops.

This project developed and piloted *Celebrating Oregon Agriculture: Bring it Home!*, a multi-platform television, print and online campaign designed to motivate parents and caregivers of school-aged children to purchase, prepare and consume Oregon specialty crops. This project enhanced previously completed and existing Specialty Crop Block Grant projects that work to increase both access to institutional markets for producers of Oregon specialty crops and /or the availability of Oregon specialty crops in institutional markets.

**PROJECT APPROACH**

Initial project partners on this grant included the Oregon Department of Agriculture, KATU Channel 2, *ediblePortland*, and faculty at Oregon State University’s Food Innovation Center. Multiple staff at the Oregon Department of Agriculture contributed in-kind staff time to support this project. To develop the promotional messages, we conducted four types of formative research. First, working with KATU Channel 2, *ediblePortland*, ODA staff, and Commodity Commissions, we conducted several creative sessions and interviews to determine “the story of Oregon Specialty Crop industry.” We were looking for ideas such as when different stories could be told, what production and nutritional facts to include, and appropriate spokespersons for those stories.

Second, ODA conducted a literature review to determine what messages are more likely to result in the target audiences purchasing and consuming Oregon specialty crops. Fortunately, during this phase of the project, the USDA’s Food Nutrition Services released a new report entitled, *Maximizing the Message: Helping Moms and Kids Make Healthier Food Choices*. We decided to use the five evidence-based “core messages” outlined in this USDA report as an additional framework for structuring our campaign. This proved efficacious as the Nutrition Council of Oregon voted to similarly use those messages in their programming. This means that most

federal nutrition programs run in the state (e.g. SNAP and WIC) as well as state nutrition programs administered by agencies will be using the same frames and messages as the Celebrate Oregon Agriculture campaign.

Third, working with *edible*Portland, we obtained initial and on-going media training to improve our on-camera skills, hone visual and verbal messages, and distill complex ideas related to the importance of the specialty crop industry in Oregon to health and the economy.

Fourth, Oregon State University hosted four focus groups at the Food Innovation Center with 22 diverse participants. Oregon State University developed a recruitment survey, pre-screened applicants, placed participants in a group, and conducted videoing and room set up. Participants were asked questions about their purchasing behaviors as well as barriers to and resources for cooking and gardening with kids. Participants were also asked to react to specific messages. The focus groups were a critical component to confirming, or rejecting, specific messages and images. For example, during the focus groups we learned that participants did not like the phrase “Oregon Agriculture: Bring it Home!” The term invoked negative reactions and participants chose “Celebrate Oregon Agriculture” instead.

From the focus groups we also learned that participants preferred to consider specialty crops in the context of “the whole plate” and not as “separate ingredients” or as “an after thought” to the main meal items. Participants wanted information on how they were produced and who produced them. They also wanted “authoritative” nutrition information to help them and their families “eat healthy.” These findings helped inform the segment format and our strategy of how and when, if at all, to include mention of, or images of, non-specialty crop items.

We decided to include mention of non-specialty crops in instances where the message enhanced the likelihood of the consumer utilizing specialty crops. An example of this is in listing the ways berries could be eaten “fresh by the handful, in smoothies, or layered into yoghurt” (see segment entitled *Visit a U-Pick farm with your family and create memories that last a lifetime* that aired July 27, 2012). Another example is that we also showed images of “My Plate” to demonstrate that consumers should “fill half their plate with fruits and vegetables, add a whole grain, a protein and a side of dairy.” Using “My Plate” as a nutrition education guide required us to mention and include non-specialty crops (see segment entitled *The School Day Just Got Healthier* that aired September 7, 2012). We obtained additional financial support from the Oregon Dairy Council / Oregon Dairy Products Commission, and the Agribusiness Council of Oregon to fund non-specialty crops in messages related to the whole plate messaging in both the commercials and segments.

From this extensive formative research we developed four marketing objectives:

1. Elevate **awareness** of and **attitudes** about, and **utilization** of, Oregon’s specialty crops.
2. Educate the public about the **availability** and **affordability** of Oregon’s specialty crops.

3. Help parents and caregivers of school-aged children **understand the connection between healthy food choices and the overall health** and well being of their children.
4. **Motivate** parents, and give them the **knowledge** and **skills** needed to have their children participate in the **growing, harvesting, cooking** and **servicing** Oregon's specialty crops.

To achieve these marketing objectives we developed and piloted television, print and web campaign components. Specific campaign components implemented include:

1. Television on KATU 2

- a. Between June-December we developed five on location, and two in studio, segments (each 3-4 minutes long) that aired on *AM Northwest*, and again on *Primetime*. Segments always aired on Fridays to maximize the likelihood viewers would act on the calls to action presented. Pilot season segment titles and dates they aired are as follows:

- i. Visit a U-Pick farm with your family and create memories that last a lifetime (July 27, 2012).
- ii. Fall and Winter Gardening with Kids (August 17, 2012).
- iii. The School Day Just Got Healthier (September 7, 2012).
- iv. Healthy Snacks for Kids (September 21, 2012).
- v. Farm to School Month (October 5, 2012).
- vi. The Bounty of Oregon for the Holidays (November 16, 2012).
- vii. Frozen Fruits Make Healthy Holiday Treats (December 14, 2012).

- a. Developed two 30-second, and two 15-second commercials that aired at all times of the day the week leading up to the Friday the segment aired. Commercials were used to promote the television segments and reinforce the significance of Oregon agriculture to the economy, along with the call to action to "Ask for it at a farm stand, restaurant, or grocery store near you." Originally we had thought we might develop up to four commercials, however, once the campaign was underway, we realized it was better not to change the commercial that often. We developed one for the months of June-October and then one for November and December to reflect seasonal changes in the landscape.

2. Print

- a. Developed one full page add in *ediblePortland* for the fall issue. Originally we also thought we would develop "tips of the month" and other calendar items in the quarterly *ediblePortland* issue. However, since this was a pilot season, we developed the television components on an on-going basis, whereas the print materials needed to be developed months in advance. Therefore the timing was off in our development of different materials to accommodate the long lead way needed for print.
- b. Published one article in the Oregon Department of Agriculture's *Ag Quarterly* that increased the agricultural community's knowledge of the campaign.

3. Web

- a. KATU Channel 2 developed a *Celebrating Oregon Agriculture* tile on the AM Northwest page that appears under the video box. The *Celebrating Oregon Agriculture* tile takes

viewers to a separate page where all video and links are archived. Additional links are provided for each segment that drives consumers to more information about where to find, and how to use, Oregon specialty crops (<http://www.katu.com/amnw/sponsored/celebrate-oregon>). Recipes featured on the in-studio cooking segments also appear on the “Recipes” button on the AM Northwest webpage (<http://www.katu.com/amnw/recipes>).



- b. *edible*Portland’s website mirrored KATU’s AM Northwest Website. An additional web banner ad appeared on *edible*Portland.com promoting the campaign. The web banner mirrored the full-page print ad.
- c. Originally we thought we would also post videos on the Oregon Department of Agriculture’s Agriculture Development and Marketing Pages webpages. However, the agency’s webpages are undergoing development and were not yet ready for the additional postings. As soon as the agency’s webpage is up to date, we will archive videos and links there as well. We did, however, post each segment to ODA’s program area Facebook page.

Initial analysis of click through rates indicates that each segment has been watched on the AM Northwest or *edible*Portland site approximately 1,000 times in addition to the estimated 50,000 viewers who originally saw the segment air on television. We are unable to capture how many views are seen through Facebook or other re-postings. We do know, however, that at least five groups within Oregon including the Farm Bureau, Agri-business Council, Growing Gardens, Oregon Farm to School & School Garden Network and Thrive have reposted segment links on their websites and / or Facebook pages. Three national groups have also sent links to the campaign to their constituents.

### **GOALS AND OUTCOMES ACHEIVED**

The **goal** of this campaign was to increase the amount of Oregon specialty crops that parents and caregivers of school aged children buy, prepare and eat, by using media to enhance parents’ awareness of and attitudes towards Oregon grown fruits, vegetables and tree nuts. Pre-

production including all research, story selection, and scripting was done by ODA in partnership with KATU Channel 2, *ediblePortland*, and Oregon State University's Food Innovation Center. Live action production included both field and in-studio production that was done by KATU Channel 2. Post-production, completed by KATU Channel 2, included all editing, color correction, audio and graphic design. KATU Channel 2, *ediblePortland*, and the Oregon Department of Agriculture completed social media extensions. Brand development and graphic design was based on the previously successful "*Celebrating Oregon Agriculture*" brand developed by KATU Channel 2 and *ediblePortland*.

We sought to highlight 5-10 Oregon specialty crops. However, through stories and visual images we were able to show 44 specialty crops including: apples; blackberries (50 varieties); beets; blueberries; boc choy; broccoli; Brussels sprouts; cabbage (yellow and purple); carrots (carrots, purple, red); cauliflower (white, yellow, purple); celery; cherries; Christmas trees; corn; cranberries; garlic; green beans; green onions; green beans; gourds; hazelnuts; herbs (oregano, thyme, rosemary, basil); kale; kiwi berries; lettuce; Marion berries; mint; nursery crops including shade trees, ornamental and edibles (including plant starts and seeds); peaches; pears (10 varieties); peas; peppers (red, orange, yellow); potatoes (4 varieties); pumpkins; radishes (3 varieties); raspberries; strawberries; Swiss chard; tomatoes; turnips; watermelon; wine (red and white); and winter squash.

We highlighted the different forms specialty crops come in including fresh, frozen, canned and dried. Also highlighted the many outlets from which consumer can get specialty crops including farm stands, farmers markets, grocery stores, restaurants, u-pick stand and schools. Included was mention and links to farm stands and farmers markets that accept WIC Fruit and Veggie Vouchers and Senior Direct Nutrition Program. The purpose was to increase purchase of Oregon specialty crops by consumers from all income brackets. Emphasis was also on the producers of specialty crops to highlight the quality and skills of Oregon specialty crop producers.

The **expected measurable outcome** was an increase in the amount of specialty crops purchased as measured by a survey of at least one retail grocery outlet or farmers market. Given this was a new campaign, the **benchmark** had not yet been established. We assumed we would collect the benchmark as part of this project using retailers' previous year's monthly sales records for the same 5-10 highlighted specialty crops we intended to feature.

During this pilot, however, we learned that given the generic nature of this promotion and the general calls to action that determining the **program impact** through quantitative assessment of specialty crops was not feasible. An Oregon State University economist and other marketers determined that there was "too much noise" and that it was "too early to tell an effect" of this campaign on consumers' purchasing and consumption behavior given the available resources for evaluation using retail data and the amount of time the campaign has run. The \$2,000 we had

budgeted for evaluation was instead used during the formative research phase to incentivize focus group participation.

We also researched other potential benchmarks and data collection points for this or future iterations of the campaign. We inquired into existing data sets that project partners were collecting and that we may be able to use for this project. Twice a year, KATU Channel 2 surveys 2,400 viewers aged 18 and older and asks if they “purchase locally grown food.” During the last time period surveyed, 54% of viewers indicated they did purchase locally grown food.” While this could include non-specialty crop items such as Oregon produced dairy or meat, it is a potential benchmark to begin tracking future campaign impacts.

While a quantitative analysis was not feasible during the pilot phase, we have had qualitative feedback that viewers are familiar with the Celebrate Oregon Agriculture promotion and are hearing the messages. For example, at a recent meeting of institutional purchasers, a school food buyer repeated the commercial line for line. It let us know that absent prompting from project partners, we are starting to hear evidence that the messages “are sticking.”

In the project proposal we projected that, “segments and commercials would reach 88% of households in Portland at a frequency of 10.4 times generating approximately 14,760,500 gross impressions.” Additionally, we stated that, “each ediblePortland advertisement and calendar event is anticipated to reach 70,000 readers per issue. All segments will be video archived on ODA’s website, [KATU.com](http://KATU.com) and [ediblePortland.com](http://ediblePortland.com). Ag Quarterly articles will reinforce messages and drive traffic to ODA website, [KATU.com](http://KATU.com) and [ediblePortland.com](http://ediblePortland.com). Click through rates at [KATU.com](http://KATU.com) and [ediblePortland.com](http://ediblePortland.com) will also be tracked.”

The following reach, frequency and impressions estimates are based on best available data. We determined that during the 2012 pilot year, Celebrate Oregon Agriculture segments and commercials reached approximately 90% of households in Portland DMA at a frequency of about 4 times generating approximately 8.5 million gross impression to adults 18 years old or older. Additionally, each ediblePortland advertisement reached 70,000 readers per each of the two issues. Further, approximately 1,000 webpage views (for an average of 4 minutes per view) were realized for each segment between the [katu.com](http://katu.com) and [ediblePortland.com](http://ediblePortland.com)

## **BENEFICIARIES**

The beneficiaries of this project go far beyond what we originally anticipated. While increasing the competitiveness of Oregon’s specialty crops, we have also been broadening the community of stakeholders that support and promote Oregon’s specialty crop industry. We were thrilled to discover the extent to which the agriculture, health and education communities worked together to support the development of the commercial and the segments. Assistance in the form of fact checking, site location, identifying spokespersons, photos, and segment ideas came from seventeen community partners including: Agri-business Council of Oregon, Gervais School

District, NORPAC, Oregon Dairy Council, Oregon Department of Education, Oregon Hazelnut Commission, Oregon Nursery Association, Oregon Public Health Authority, Oregon State University, Oregon Sweet Cherry Commission, Pearmine Farms, Portland Nursery, Portland Public Schools, Smith Berry Barn, South Coast Cranberries, Whole Foods, and Zenger Farms.

Having the Oregon Departments of Education and Public Health, for example, more knowledgeable about and connected to Oregon agriculture is beneficial in the long-term. Other potential future partners that have recently self-identified themselves include the health care community. By their nature, most of Oregon's specialty crops, particularly fruits and vegetables and tree nuts, are healthy food choices. Health care facilities interested in "upstream" public health approaches have recently engaged us to scope potential future partnerships to co-promote Oregon's specialty crops in the intentional, evidence-based way we have developed through this campaign.

### **LESSONS LEARNED**

For those in other states seeking to similarly launch a multi-platform campaign we offer the lesson that its important to chose project partners in television and print who are willing to take the extra time to think about both visual and verbal images, and to train spokespersons in talking points and on-camera presence. The pilot project took much more staff time than anticipated from multiple people at the Oregon Department of Agriculture, and from our project partners. All project partners were committed to a successful campaign, but a major lesson for future iterations of this project is to allot more resources to accomplish similar outcomes.

Further, in this pilot phase, we completed the bulk of our media training at the onset of this project. What we learned, however, was that on-going media training is necessary. It is important to have professional input into visual and verbal messages as segments are developed. And it is invaluable to have professional support when debriefing each segment, as that is when the learning really takes hold. It is clear that we are not only building the skills and capacity of the Department of Agriculture to tell the story of specialty crops, but that this project is building the capacity of specialty crop producers as well.

The level to which those outside of Oregon have demonstrated interest in the campaign was also surprise. For example, three national organizations, the Kellogg Foundation's Food & Society program, the National Farm to School Network, and School Food FOCUS have each included mention of the campaign along with links in their e-newsletters that are distributed to approximately 30,000 leaders in the school food market. This further supports Oregon's specialty crop industry's efforts to sell outside of Oregon. For example, the Oregon Department of Agriculture is working to get Oregon specialty crops into the regional and national school food market. This project then, has helped develop and strengthen relationships with school food buyers in other states. While this benefit was unintentional, future iterations of this project should include intentional efforts to more fully capture the regional and national sales potential.

Lastly, another major lesson learned is that there are numerous other social media extensions and communication formats we could employ to more fully realize the potential impact of this campaign. We included links in each segment to more resources, but we also need to maximize the viewing potential of segments and webpages developed. Future iterations of this project should develop a robust social media strategy, and consider other formats such as radio.

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**031 TITLE: Bringing More Oregon Fruits and Vegetables into School Cafeterias Phase II- Filling an immediate need to expand Oregon’s Harvest of the Month toolkit – *Final Report***

**CONTACT NAME: Michelle Markesteyn Ratcliffe, Oregon Department of Agriculture**

**PHONE: 503.872.6620**

**EMAIL: [mmarkesteyn@oda.state.or.us](mailto:mmarkesteyn@oda.state.or.us)**

**PROJECT SUMMARY**

Farm to School programs are a quickly expanding market for Oregon’s specialty crops. An increased focus on improving the school food environment coupled with recently passed federal and state legislation (the Healthy, Hunger Free Kids Act; and HB 2800) 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.

A keystone to expanding Farm to School efforts in Oregon is the Oregon Harvest for Schools toolkit and foodservice training. Phase I of the Oregon Harvest for Schools toolkit was previously funded by a FY 2009 Specialty Crop Block Grant funds. This project then completes Phase II of a project to “Bring More Oregon Fruits and Vegetables into School Cafeterias through developing the Oregon Harvest for School Toolkit.” These materials can be found at [www.ode.state.or.us/go/h4s](http://www.ode.state.or.us/go/h4s).

Phase I of the Oregon Harvest for Schools toolkit included materials for a monthly-featured Oregon fruit or vegetable. Materials include (1) poster (with information about the featured produce item on the front side, and tips for promoting the produce along with age appropriate supplemental educational activities on the backside of the poster), (2) menu slick of fun facts, and (3) family newsletter. Additionally, the Oregon Department of Education provided trainings around the state to school food buyers on how to procure, prepare, serve and promote the featured Oregon produce.

This project then completed Phase II of the Oregon Harvest for Schools Toolkit. Phase II differed from Phase I in what materials were developed, and in who participated in the project. During Phase I of this project we learned that there is a statewide desire to have a three-year (36 month) cycle of specialty crops from which schools may use to promote specialty crops in schools and to families of school-aged children. We also learned that there was a need for Spanish translation, templates to better promote specialty crop farmers, and that menu slick and suggested activities needed to be formatted differently.

Phase II then built on the success of Phase I by producing four more months of materials for the featured crops of beets, cabbage, cane berries, and peppers; and piloted a couple of significant changes including:

- **Training** - Phase II did not include training for school food buyers as they were recently trained during Phase I of this project. Further, buyers indicated a need for more materials to feature more Oregon specialty crops, but did not specifically ask for more training on how to use the materials.
- **Spanish Translation and Farmer Profiles** - School food buyers indicated a need to expand the toolkit to include Spanish translated family newsletters, and modifiable farmer profiles template. Spanish translation and farmer profile templates are both new components to Phase II of this project.
- **Fun Facts and Enrichment Activities** - Menu slicks that were part of Phase I, will be replaced by “fun facts and sample integrated enrichment activities” in Phase II. We received feedback that the menu slicks were not universally applicable as many schools used their own menu format and the menu slick format was not easily interchangeable with what they already used. However, the facts and content supplied were useful to schools. In Phase II we developed copy that could easily be used in any menu format. Further, in Phase I, supplemental educational activities for elementary, middle and high school were included on the backside of the poster. The reality was that once the posters were hung up, teachers did not see the educational activities. In Phase II, we pulled those suggested materials off the back of the poster and created a separate document called “enrichment activities.” Further, we improved the overall format of the enrichment activities to better help educators connect lessons in the class utilizing Oregon specialty crops to state benchmarks and performance standards, and providing enough direction to teacher to help them be successful in those activities.

Given an increased capacity at the Oregon Department of Agriculture (ODA), the ODA acted as the project manager for Phase II. Phase I of the project was managed by the Oregon Department of Education (ODE). For Phase II, ODA partnered with ODE and the Corvallis Environmental Center to develop and disseminate Phase II materials.

## **PROJECT APPROACH**

The project partners on Phase II of this project included the Oregon Departments of Agriculture (ODA) and Education (ODE) and the Corvallis Environmental Center.

ODA provided overall project management, and reviewed and approved toolkit materials content including copy and graphics. ODE also reviewed and approved toolkit materials content including copy and graphics; reviewed Spanish translated family newsletters; and posted materials on ODE Child Nutrition Programs website alongside those developed during Phase I materials. The Corvallis Environmental Center drafted content for toolkit materials; managed all graphics for posters, family newsletters, sample integrated enrichment activities, and farmer

profile templates; sought approval from ODA and ODE on content and graphics; finalized content and graphics; provided ODE with final materials to post on the ODE Farm to School webpage.

ODA and ODE also included visual and verbal messages about the Oregon Harvest for Schools materials in a Celebrate Oregon Agriculture segment (SCBG FY 2009) that aired on the local television station. The segment highlighted the positive changes in the school cafeteria and may be viewed online at <http://www.katu.com/amnw/segments/Healthier-School-Lunches-168940276.html>.

In the original project scope we intended to have the final materials printed for distribution. However, the amount of time it took for the state agencies to review and approve was longer than anticipated and we ran out of time to complete the printing within the project-funded period. Future iterations of the project should include printing materials and additional time for review and approval of multiple agencies.

## **GOALS AND OUTCOMES ACHIEVED**

The **goal** of Phase II of this project was to give school foodservice the tools they need to increase the amount of Oregon specialty crops procured, served and promoted. The **expected measurable outcome** for Phase II was the increase in the number of school districts who participate in the Fresh Fruit and Vegetable Program who indicate they are purchasing Oregon fruits and vegetables used in the Fresh Fruit and Vegetable Program.

Based on a 2011 survey of Sponsors of the National School Lunch and Breakfast Program in Oregon, of the 114 (out of 198) school districts that responded, 31 indicated at least one of the schools in their district participated in the Fresh Fruit and Vegetable Program. Of those, 31 districts, 24 indicated they have sourced Oregon specialty crops for that program. Therefore 24 districts is the **Benchmark** for Phase II of this project.

Our **performance measure** for Phase II was a 10% increase in the number of school districts purchasing Oregon specialty crops in the Fresh Fruit and Vegetable Program for a **target** of 2 school districts. As measured by a telephone survey, **we found that 5** additional school districts that participate in the Fresh Fruit and Vegetables Program started purchasing Oregon produce for that program. That equates to a 20% increase in the number of school districts purchasing Oregon specialty crops in the Fresh Fruit and Vegetable Program.

## **BENEFICIARIES**

During the Phase I of this project (FY 2007), the goal was to develop at least 9 months worth of toolkit materials and to provide trainings to foodservices. Phase I actually resulted in 12 months of materials being developed and 4 trainings provided around the state. The development of the toolkit materials during Phase I prompted widespread enthusiastic support for the approach, and

a clear call for more from school food buyers, farmers, educators, and Farm to School practitioners.

The widespread use of the Oregon Harvest for School toolkit materials are likely due to the fact that the promotion creates a focal point for programmatically connecting the cafeteria, classroom and community. Making connections between the cafeteria, classroom and community is an evidence-based best practice to ensure students have enough exposure to the specialty crops so that they will consume them. It is important that students eat the Oregon specialty crops in schools so that school will continue to buy them. Further, connecting with community-based components, such as the family newsletter, may have a rippling effect in the retail market.

Schools new to Farm to School are able to quickly implement best practices using the Oregon Harvest for Schools materials. Farm to School mature districts also find the materials helpful in getting educators and the community more engaged in using Oregon specialty crops as a lens to teach a variety of subjects. We have also heard from farmers that the high quality, consistent look of the materials helps better connect producers to kids and their families. A personal connection to current and future customers is highly valued by many specialty crop producers.

## **LESSONS LEARNED**

We would recommend many states consider developing a statewide promotion for schools if they do not have one already. In addition to the direct benefits of promoting specialty crops to the youngest consumers, this project has the additional effects of catalyzing interest in Farm to School and local purchasing across all product areas. We have also found that the Oregon Harvest for Schools materials acted as a conversation starter for the hospital and retail outlets. There is growing interest in cross promotion of Oregon specialty crops across multiple locations where children and their families are likely to eat and / or purchase foods. Further, other product commissions such as the Trawl, Beef and Dairy Commissions are currently scoping developing similar materials for their respective products. This is important because as schools increase the volume of local purchases, the more they rely on distributors (as opposed to direct sales from farmers) to fill those orders. Thus, it is plausible that the more Oregon products moving into schools overall, the more likely distributors may be to sourcing Oregon specialty crops and offering them to schools and other institutional purchasers such as hospitals, prisons, childcare facilities, and business campuses.

**003 Maximum Residue Level Testing Project**

*Attachment 1:* 2012 COI pesticide residue screens (onions)

*Attachment 2:* 2012 US-Korea blueberry pre-clearance residue screen (blueberries)

COI DOMESTIC SCREEN	Program Year: 2012 MDL: .01 ppm
3-Hydroxy Carbofuran	Formetanate HCl
Aldicarb	Imidacloprid
Azoxystrobin	Iprodione
Bentazon	Lambda-Cyhalothrin
Boscalid	Linuron
Bromoxynil	Malathion
Captan	Mefonaxom (Metalaxyl-M)
Carbofuran	Metalaxyl
Carboxin	Methomyl
Carfentrazone-ethyl	Methyl Parathion
Chlorothalonil	Metochlor/Metolachlor
Chlorpyrifos	Oxamyl
Chlorthal - dimethyl	Oxydemeton - methyl
Clethodim	Oxyfluorfen
Clopyralid	Pendimathalin
Cycloxydim	Permethrin
Cyfluthrin	Pyraclostrobin
Cymoxanil	Pyrethrins
Cypermethrin	Pyrimethanil
Cyprodinil	Pyriproxyfen
Deltamethrin	Sethoxydim
Diazinon	Spinosad
Dichloran	Spinetoram
Dimethenamid	Spirotetramat
Dimethoate	Tralomethrin
EPTC	Zeta-cypermethrin
Ethofumesate	
Famoxadone	
Fenamidone	
Fenbutatin oxide	
Fipronil	
Fluazifop - p	
Fluazinam	
Fludioxonil	
Flumioxazin	

OFF-LABEL SCREEN	Program Year: 2012 MDL: .01 ppm
Bentazon	
Carbofuran	
Clopyralid	
Dimethoate	
Formetanate	
HCl	
Methomyl	

2,6 Diisopropyl-naphthalene	cis - Permethrin	Fipronil
2 - Phenylphenol	Clofentezine	Flonicamid
3 - Hydroxycarbofuran	Clomazone	Fluazifop
Acephate	Clopyralid	Fluazinam
Acetamiprid	Clothianidin	Flufenoxuron
Acetochlor	Cyanazine	Flumeturon
Acibenzolar - s - methyl	Cyanophos	Flumioxazin* (MDL.02ppm)
Aldicarb	Cyazofamid	Fluopicolide
Aldrin	Cycloxydim	Fluridone
Ametryn	Cyfluthrin	Fluroxypyr
Aminopyralid	Cyprodinil	Flusilazole
Aramite pk1	Cyromazine	Flutolanil
Atrazine	Demeton - s - methyl* (MDL .02ppm)	Forchlorfenuron
Azimsulfuron	Deltamethrin	Formetanate HCl
Azoxystrobin	Diazinon	Fosthiazate
Benalaxyl	Dichlofenthion	Haloxfop - methyl
Bendiocarb	Dichloran	Heptachlor
Bensulfuron - methyl	Dichlorvos	Hexachlorobenzene
Bensulide	Dieldrin	Hexaconazole
Bentazon	Difenoconazole	Hexaflumuron
Benzyladenine	Difenzoquat	Imazalil
BHC alpha	Diflufenican	Imazapyr
Bifenox	Diflufenzopyr	Imazethapyr
Bifenthrin	Dimethenamid	Imidacloprid
Bitertanol	Dimethoate	Indoxacarb
Boscalid	Dimethomorph	Iprodione
Bromacil	Dinotefuran	Isofenphos
Bromophos ethyl	Dioxathion	Isoprocarb
Bromopropylate	Duiron	Kresoxim - methyl
Bupirimate	Endosulfan I	Lenacil
Buprofezin	Endosulfan sulfate	Lindane
Captan	Endrin	Linuron
Carbaryl	EPTC	Malathion* (MDL .02ppm)
Carbendazim	Ethion* (MDL .02ppm)	MALS (dibutyl maleate)
Carbofuran	Ethoprophos	Mandipropamid
Carboxin	Etridiazole	Mecarbam
Carfentrazone-ethyl	Etrimfos	Mepronil
Chinomethionat	Fenarimol	Metalaxyl
Chlorantraniliprole	Fenbuconazole	Methabenzthiazuron
Chlorfluazuron	Fenbutatin oxide	Methamidophos
Chlorobenside	Fenhexamid	Methiocarb
Chlorobenzilate	Fenitrothion	Methomyl
Chloroxuron	Fenoxyaprop - ethyl	Methoxyfenozide
Chlorpropham* (MDL .02ppm)	Fenoxycarb	Metolachlor
Chlorpyrifos	Fenpyroximate	Metsulfuron - methyl
Chlorpyrifos - methyl	Fensulfthion	Mevinphos
cis - Chlordane	Fenthion	
	Flazasulfuron	

Molinate	Pyrazophos	Vamidothion
Monocrotophos	Pyrethrins	Vinclozolin
Monolinuron	Pyridafenthion	Warfarin
Myclobutanil	Pyrimethanil	XMC
Napropamide	Pyriproxyfen	Zoxamide
Norflurazon	Quinalphos	
Nuarimol	Quinoxyfen	
o-Phenylphenol	Quintozene	
Oxadixyl	Quizalofop-ethyl	ADDED PHENOXIES:
Oxamyl	Rimsulfuron	2,4-D
Oxydemeton-methyl	Ronnel	2,4-DB
Oxyfluofen* (MDL .04ppm)	Rotenone	Dicamba
p,p' methoxychlor	Sethoxydim	Dichloroprop
p,p' DDT	Simazine	MCPA
Parathion* (MDL .02ppm)	Spinetoram	MCPB
Parathion-methyl* (MDL .1ppm)	Spinosad	MCPP
Pencloronitrobenzene (Quintozene)	Spirotetramat	Picloram
Pencyuron	Sulfentrazone	Triclopyr
Pendimethalin	Tebuconazole	
Perthane (1,1Dichloro-2,2bis(4-ethylphenyl)ethane	Tebufenozide	
Phenthoate	Tebufenpyrad	
Phorate* (MDL .02ppm)	Tebuthiuron	
Phosalone	Tecnazine (Fusarex)	
Phosmet* (MDL .02ppm)	Terbacil	
Phosphamidon	Tetrachlorvinphos	
Phoxim	Tetradifon	
Pindone* (MDL .02ppm)	Thiabendazole	
Pirimicarb	Thiacloprid	
Prochloraz	Thiobencarb	
Prodiamine	Thiodicarb	
Profenofos	Thiometon	
Prometryn	Tolfenpyrad	
Propachlor	TPP	
Propargite	Tralomethrin	
Propazine* (MDL .02ppm)	Triadimefon	
Propiconazole	Triadimenol	
Propoxur	Triazophos	
Propyzamide	Trichlorfon	
Pyraclufos	Tricyclazole	
Pyraclostrobin	Triflumizole	
Pyraflufen ethyl	Trifluralin	

2012 Blueberry Pre-Clearance Screen

<b>Chemical Name</b>	<b>Trade Name</b>	<b>Korea Tolerance (ppm)</b>
BHC	Lindane	0.2
Bifenthrin *	Brigade	0.5
Carbofuran	Furadan	0.5
Chlorfenapyr	Pirate	0.5
Chlorothalonil	Bravo	1
Chlorpyrifos	Lorsban	0.5
Chlorpyrifos-methyl	Reldan	0.1
Cyhalothrin	Nexide/Fentrol, Grenade, Charge	0.2
Cypermethrin	Mustang	2
Cyprodinil*	Switch	1
DDT	DDT	1
Diazinon*	Diazinon	0.1
Dichlorvos	DDVP, Vapona	0.1
Dicofol	Acarin, Kelthane	1
Dimethoate	Cekuthoate, Chimigor 40, Cygon 400, Daphene	1
Endosulfan*	Thionex	0.2
EPN		0.1
Ethion	Ehtion	2
Ethoprophos	Mocap	0.02
Fenarimol	Rubigan AS	0.3
Fenitrothion	Accothion	0.2
Fenpropathrin*	Danitol	0.5
Fenthion	Baycid, Baytex	0.2
Fenvalerate/Esfenvalerate*	Asana XL	0
Fludioxonil	Medallion	2
Fluquinconazole	Amistar	1
Imazalil	Bromazil	2
Iprodione*	Iprodione	10
Isoprothiolane	Fuji 1	0.05
Malathion	Malathion	10
Metalaxyl*	Ridomil	0.2
Methidathion	Somonic, Somonil	0.2
Methomyl*	Lannate	1
Paclbutrazol	Clipper, Bonzi	0.05
Parathion		0.3
Parathion-methyl		0.2
Pendimethalin	Prowl, Stomp, Stealth	0.05
Permethrin	Ambush	1
Phenthoate		0.2
Phosmet	Imidan	10

Phosphamidone	Dimecron	0.2
Pirimicarb	Pirimor	0.5
Prochloraz		0.5
Procymidone	Similex	10
Pyrazophos		1
Quintozene		1
Terbufos	Contraven, Counter	0.05
Tetradifon	Tedion V-18	2
Triadimefon	Acizol, Amiral	1
Triazophos	Hattrick	0.05
Triflumizole	Terraguard	2
Vinclozolin	Ronilan, Curalan, Vorlan, Touche	10
Lead		0.02

**005 Southeast Asia Director's Mission**

*Attachment 1: Itinerary*

*Attachment 2: Delegation List*

*Attachment 3: Photos*

# 2009 Asia Director's Mission

Prepared by: Oregon Department of Agriculture  
For: Oregon/Washington Specialty Crop Delegation

Revised 11/08/09

## Friday, November 13

12:15 PM Depart Portland NW 785

## Saturday, November 14

Taipei, Taiwan

9:55 PM Arrive Taipei, Taiwan NW 343 from Narita, Japan  
To be met at gate by Chris Frederick, AIT's AGR Deputy, who will guide team through airport and accompany to Hotel

Hotel

Sheraton Taipei  
No.12, Zhongxiao East Rd. Sec.1  
Taipei 100, Taiwan, R.O.C.  
Tel 886-2-23215511 Fax 886-2-23944240  
<http://www.sheraton-taipei.com/english/index.htm>

## Sunday, November 15

Taipei, Taiwan

9:45 AM Depart hotel for Costco in Neihu District

10:15 AM Costco tour - [http://www.costco.com.tw/eng/whs\\_872.htm](http://www.costco.com.tw/eng/whs_872.htm)

*- There are six Costco Stores in Taiwan – these are some of Costco's highest revenue stores in the world. Taiwanese students and other visitors to the USA demand the same products they were accustomed to when living in the US. For example, Costco imports several containers of chilled US beef each month for their six stores in Taiwan.*

11:15 Depart Costco for Sogo Department Store at Fuxing Road – Tour of City Super

*- City Super is part of a Hong Kong gourmet supermarket chain and is part of the Far Eastern Group in Taiwan. There are currently three City Super supermarkets in Taiwan and this store opened about four years ago with the opening of the Japanese Sogo Department Chain Store above.*

12:00 Lunch at Ding Tai Feng next to City Super

*- This is one of Taiwan's most famous chain restaurants with stores opening around the world. Their specialty is a hand-made, steamed dumpling called a mini xiaolongbao. This dumpling is special because after it is steamed, the pork contents melt inside the dumpling creating a rich broth with the meat and veggies. It is best dipped in vinegar, soy sauce, and eaten with fresh grated ginger. Ummh...  
[http://www.dintaifung.com.tw/en/media\\_list.asp](http://www.dintaifung.com.tw/en/media_list.asp)*

1:30 PM Return to Hotel to pick up remaining visitors and members of the ATO's FMI alumni group who will join us for the afternoon tour.

*- The FMI group consists of trade contacts from various companies who routinely travel each year with the ATO to visit the Food Marketing Institute annual trade show in the US. These importers bring in a variety of products from the US from fresh fruit/veg to wine to chilled meat products.*

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2:30 PM	Depart hotel for visit to Yeliu rock formations on Taiwan's Northeast Pacific Coast - <a href="http://eng.taiwan.net.tw/m1.aspx?sNo=0002038&amp;id=155&amp;jid=157">http://eng.taiwan.net.tw/m1.aspx?sNo=0002038&amp;id=155&amp;jid=157</a> followed by a visit to a Trout Hatchery Restaurant in Wanlee
4:00 PM	Arrive Wanlee
6:00 PM	Dinner hosted by FMI alumni at the Trout Hatchery Restaurant
8:00 PM	Return to hotel
Hotel	Sheraton Taipei

## Monday, November 16

Taipei, Taiwan

### **\*\*Additional meeting schedule for Director Coba and Director Newhouse**

8:00 – 9:30 AM	Breakfast briefing with Agricultural Trade Office (ATO), American Institute in Taiwan (AIT) Office @My Humble House (2F) Sheraton Hotel Speakers: Mark Dries – AIT Agricultural Section Chief Keith Schneller – ATO Director Davin Potts – APHIS Representative Dr. Hsu – Food Processor (FMI Alumni Leader) Norman Tseng – the “Kiwi” King – importer of fresh fruits/veg Ron Lu – Director of US Wheat Associates Taiwan
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*- USDA has three offices based in Taiwan, our sixth largest agricultural trade market in the world. Mark Dries is the Agricultural Section Chief who oversees both the Agricultural Trade Office and the APHIS office. More than 16 US agricultural producer associations are represented in Taiwan. Ron Lu will give an overview of US wheat market presence in Taiwan. Please take a look at our website: [www.usfoodtaiwan.org](http://www.usfoodtaiwan.org)*

10:00 –12:00	Potato Seminar – Session 1 (Table stock potatoes) Audiences: Around 30-40 people representing 15-20 Taiwan fresh produce importing companies, retail chains, and HRI
11:00 AM **	<b>Meeting with Ms. Lin Sheue-Rong, Director General Bureau of Food Safety, Department of Health 80 Linshen North Road, Taipei Transport via AIT van</b>
12:00 – 1:00 PM	Lunch at Hotel with Potato Seminar Participants

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- 2:00 – 4:00 PM      Potato Seminar – Session 2 (Chipping stock potatoes)  
Audiences: Around 15 people representing 3 leading Taiwan potato chip manufacturing companies.
- 2:40 PM \*\*      Depart seminar for BSMI by walk**
- 2:45 PM \*\*      Meeting with Mr. Chen Jay-san, Secretary General  
Bureau of Standards, Metrology, and Inspection (BSMI)  
Ministry of Economic Affairs**
- 3:45 PM \*\*      Depart BSMI for Council of Agriculture (AIT van)**
- 4:00 PM \*\*      Meeting with Mr. Wang Ming-lai, Counselor and  
Ms. Chang Shu-Hsien, Director of the Int'l Affairs Dept.  
Council of Agriculture**
- 5:15 PM \*\*      Depart COA for Taipei 101**
- 6:10 PM      Depart hotel for Taipei 101
- 6:30 – 8:30 PM      Reception @ Diamond Tony's Panorama Restaurant on the 85<sup>th</sup>  
floor of Taipei 101 for 60+ key contacts, hosted by the OR/WA  
Agricultural Commissioners.

*- Taipei 101 was the highest building in the world until it was another skyscraper in the UAE two years ago. Diamond Tony is a leading restaurateur in Taipei with four Italian style restaurants. He faithfully serves American beef and many other products from the United States. He will use some specialty potatoes, PNW seafood, and wine.*

Hotel      Sheraton Taipei

## **Tuesday, November 17**

Taipei – Manila, Philippines

- 5:00 AM      Depart hotel for Taipei Wholesale Fruit and Vegetable Market
- This market is the largest wholesale market in Taiwan and opens early in the morning for business 365 days around the year. We will be given a tour by Donald Lee who was one of the first to import potatoes from Oregon and Washington over 20 years ago. Donald speaks perfect English and knows the "market" like the back of his hand. He is still one of the largest importers of US fresh potatoes. Feel free to ask him many questions!*
- 7:30 AM      Depart Wholesale market. Return to hotel for breakfast and checkout.
- 9:00 AM      Depart hotel with luggage for Taiwanese Handicraft Center

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9:00 – 11:00 AM      Tour – Taiwanese Handicraft Center/Chiang Kai-Shek Memorial Hall

11:30                      Visit Taipei Importer & Exporter Association (IEAT), received by Secretary General Jack Huang - Briefing & meeting with IEAT's food/agr-related subcommittee members

*- Founded in 1947, IEAT is currently the most aggressive and one of the largest private business organizations in Taiwan with membership of over 5,200 companies. There are over 50 full-time professionals, under the supervision of Secretary General Jack Huang. IEAT's main responsibilities include trade promotion; lobbying for their members; talent cultivation; and information services. Currently, the association has 29 subcommittees, including agriculture, processed food, dairy products, seasonings and spices, health foods, alcoholic beverages, and many other non-agricultural products. IEAT often organizes buying missions to attend overseas trade fairs and exhibitions. ATO Taipei has been working closely with IEAT to jointly hold trade shows in Taiwan and to organize buying missions to visit FMI Trade Shows and many other trade events in the United States.*

12:00                      Lunch hosted by IEAT at the China Golden Hotel, Taipei

1:30 PM                    Depart for airport

5:20 PM                    Depart Taipei PR 899 to Manila, PI

7:30 PM                    Arrive Manila

Hotel                      Makati Shangri-la Manila  
Ayala Avenue corner Makati Avenue  
Makati City 1200  
Philippines  
T: (63 2) 813 8888  
F: (63 2) 813 5499  
<http://www.shangri-la.com/en/property/manila/makatishangrila>

### **Wednesday, November 18**

Manila, Philippines

8:00 AM                    Breakfast at the Circles, Shangri La Makati  
(*Buffet breakfast part of room charge*)

9:30 10:30 AM            Market briefing with ATO office personnel at hotel  
*Ms. Emiko Purdy, Agricultural Counselor, USDA/FAS*  
Manila B Room, Shangri\_La Makati

10:30 – 12:00            **Jollibee Foods**  
Mr. Benjo Dimal, Purchasing

**Chowking Foods**  
Mr. Ernesto Chua Concepcion

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## **RAMCAR Food Group/KFC**

Mr. James Bolaton, Ms. Senedith Delos Reyes, and Mr. Ray Nana, Supply Base Management and Development

## **Burger King**

Weng Del Prado, Training Manager

## **Hotshots Flame Grilled Burger**

Ruel M. Solon, Area Manager

2:00 – 4:00 PM

## **Mix Plant**

Marivic de Leon, Purchasing Manager;  
Edita D. de Guzman, General Manager;  
Marinela P. Tangara, Technical Services Manager

## **Dane International Commodies, Inc.**

Ms. Aida ST Garcia

## **Solar/Kian Liong**

Mr. William Tieng (DEHY)

## **Leysm**

Ms. Bettina Chu, VP Finance  
Ms. Liza Hamili, Purchasing

## **Filipino Foods Favorites, Inc**

Analyn Pediguerra, Purchasing Manager

6:00 – 9:00 PM

Presentation on NW Products and dinner hosted by Oregon/Washington Delegation and Manila ATO with Northwest products served at Shangri-la Hotel.

Hotel

Makati Shangri-la Manila

## **Thursday, November 19**

Manila, Philippines

10:00 am

Cooking Demonstration  
Manila AB Room, Shangri-La Makati  
Welcome Remarks • *David Wolf, Agricultural Attache, USDA/FAS*

10:05 am

Inspection and Certification Remarks  
• *Dalton Hobbs, Assistant Director, ODA*  
• *Jim Cramer, Administrator, CID, ODA*

10:10 am

Potato Production Overview in OR/WA  
• *Bill Brewer, Executive Director, ODA*  
• *Matt Harris, Executive Director, WSDA*

10:15 am

Potato Characteristics and Varieties Overview

## 2009 Asia Director's Mission

Prepared by: Oregon Department of Agriculture

For: Oregon/Washington Specialty Crop Delegation

Revised 11/08/09

• *Brian Charleton, Oregon Potato Commission*

10:30 am	Potato Cooking Demonstration • <i>Chef Leif Eric Benson, Executive Chef Timberline Lodge</i>
11:45 am	Participants Feedback
12:00 PM	Lunch on your own
1:30 – 3:30 PM	Potato Chipping Seminar and Business Meetings <b>Liwayway Marketing Corp.</b> Henrietta Tan, Quality Control Supervisor  <b>Universal Robina Corporation</b> Allan Surposa, VP Procurement
2:00 PM	Tour of Intramuros and Greenbelt Shopping Area for participants not attending chipping meetings – organized by 7K Maritime. Meet in lobby for bus.
Hotel	Makati Shangri-la Manila

### Friday, November 20

Manila – Hong Kong

**\*\*Additional meeting schedule for Director Coba and Director Newhouse**

AM	Depart hotel
10:00 AM	Fly PR 318 from Manila to Hong Kong
12:05 PM	Arrive Hong Kong and transfer to hotel
2:00 PM	Arrive at hotel
<b>3:30 PM**</b>	<b>Depart hotel for US Consul office</b>
<b>4:00 PM**</b>	<b>Acting US Consul General Mr. Chris Marut</b>
4:00 PM	Depart hotel for US AgrATO office
4:30 PM	Briefing at US ATO Speakers: Mr. Philip Shull, Director of US ATO
5:30 PM	Depart ATO for Mr. Philip Shull's Residence
6:00 – 8:30 PM	Reception for the Group at Philip Shull's Residence
Hotel	The Royal Pacific Hotel and Towers Hong Kong China Hong Kong City, Canton Road, Tsim Sha Tsui, Kowloon,

# 2009 Asia Director's Mission

Prepared by: Oregon Department of Agriculture

For: Oregon/Washington Specialty Crop Delegation

Revised 11/08/09

Hong Kong

T: (852) 2736 1188

F: (852) 2736 1212

[http://www.sino-hotels.com/The\\_Royal\\_Pacific\\_Hotel\\_and\\_Towers/en/default.aspx](http://www.sino-hotels.com/The_Royal_Pacific_Hotel_and_Towers/en/default.aspx)

## **Saturday, November 21**

Hong Kong/Macau

AM In-store potato demonstration (Great Food Hall)  
(Exact time to be confirmed)

Tour of Retail Markets (subject to availability of time)

2:00 PM Ferry from Hong Kong to Macau

3:30-4:00 PM Check-in Hotel

4:00 – 6:00 PM Tour of Facilities at City of Dreams

- Tour of receiving facilities, storage and pastry kitchen, staff canteen and production kitchen and then outlet and property tour. Tour ends with a bubble show.

Evening Free time

Hotel The Venetian Hotel Macau

## **Sunday, November 22**

Macau/Hong Kong

AM Tour of Macau's Infrastructure  
- Port of Macau  
- Airport  
- The Border  
- The New Development Zone

12:00 PM Lunch

3:00 PM Ferry from Macau to Hong Kong

Evening Open

Hotel Royal Pacific Hotel and Towers Hong Kong

## **Monday, November 23**

Hong Kong

9:00 AM Tour of Yau Ma Tei Wholesale Market

Tour of Wet Market

# 2009 Asia Director's Mission

Prepared by: Oregon Department of Agriculture

For: Oregon/Washington Specialty Crop Delegation

Revised 11/08/09

10:00 AM Mr. Peter Johnston  
General Manager, Quality, Food Safety & Regulatory Affairs  
ParknShop  
ATO Office – Central, Hong Kong Island

Lunch Lunch

PM Tour of Dairy Farm Fresh Food Processing Center  
Tour of Hong Kong Container Port

Dinner Delegation Dinner (TBD)

Hotel Royal Pacific Hotel and Towers Hong Kong (Kowloon)

## **Tuesday, November 24**

4:30 AM Leave hotel for Hong Kong airport  
8:00 AM Depart Hong Kong NW 296  
1:05 PM Arrive Narita, Japan  
3:45 PM Depart Narita NW 786  
7:50 AM Arrive Portland, Oregon

Oregon/Washington Specialty Crop  
Director's Mission to Asia  
November 13-24, 2009  
Delegation List

**Kathryn (Katy) Coba**

Director  
Oregon Department of Agriculture  
635 Capitol St. NE  
Salem OR 97301  
Tel: 503-986-4552  
Email: [kcoba@oda.state.or.us](mailto:kcoba@oda.state.or.us)

**Daniel (Dan) Newhouse**

Director  
Washington State Department of  
Agriculture  
PO Box 42560  
1111 Washington St SE  
Olympia, WA 98504-2560  
Tel: 360-902-1887  
Email: [dnewhouse@agr.wa.gov](mailto:dnewhouse@agr.wa.gov)

**Dalton Hobbs**

Assistant Director  
Oregon Department of Agriculture  
1207 NW Naito Parkway, Ste 104  
Portland, OR 97209  
Tel: 503-872-6600  
Email: [dhobbs@oda.state.or.us](mailto:dhobbs@oda.state.or.us)

**Robert (Bob) Gore**

Deputy Director  
Washington State Department of  
Agriculture  
PO Box 42560  
1111 Washington St SE  
Olympia, WA 98504-2560  
Tel: 360-902-1810  
Email: [bgore@agr.wa.gov](mailto:bgore@agr.wa.gov)

**Lonny (Lon) Baley**

Chairman  
Oregon Potato Commission  
Email: [lonbaley@btfspuds.com](mailto:lonbaley@btfspuds.com)

**Nancy Baley**

Merrill, Oregon

**Chef Leif Eric Benson**

Oregon Potato Commission  
Email: [benson@timberlinelodge.com](mailto:benson@timberlinelodge.com)

**Billy (Bill) Brewer**

Administrator  
Oregon Potato Commission  
9320 SW Barbur Blvd, Ste 130  
Portland, OR 97219-5405  
Tel: 503-731-3300  
Email: [brewer@oregonspuds.com](mailto:brewer@oregonspuds.com)

**Cidney (Renee) Brewer**

Portland, Oregon

**Brian Charlton**

Oregon Potato Commission  
Email:  
[brian.a.charlton@oregonstate.edu](mailto:brian.a.charlton@oregonstate.edu)

**Daniel (Dan) Chin**

Wong Potatoes, Inc  
17600 Hwy 39  
Klamath Falls, OR 97603-9758  
Tel: 541-798-5353  
Email: [wongspud@centurytel.net](mailto:wongspud@centurytel.net)

**Damien Christian**

Oregon Potato Commission  
Portland, OR

**James Cramer**

Administrator  
Commodity Inspection Division  
Oregon Department of Agriculture  
635 Capitol St NE  
Salem, OR 97301  
Tel: 503-986-4620  
Email: [jcramer@oda.state.or.us](mailto:jcramer@oda.state.or.us)

**Lindsay Benson Eng**

Special Projects Coordinator  
Agricultural Development & Marketing  
Oregon Department of Agriculture  
1207 NW Naito Parkway, Ste 104  
Portland, OR 97209  
Tel: 503-872-6600  
Email: lbenson@oda.state.or.us

**Matthew Harris**

Director of Trade  
Washington Potato Commission  
108 S. Interlake Rd  
Moses Lake, WA 98837  
Tel: 509-765-8845  
Email: mharris@potatoes.com

**Christopher Olsen**

Washington Potato Commission  
108 S. Interlake Rd  
Moses Lake, WA 98837  
Tel: 509-989-0203  
Email: twoos@cbnn.net

**Karla Valness**

Office Manager  
Agricultural Development & Marketing  
Division  
Oregon Department of Agriculture  
1207 NW Naito Parkway, Ste 104  
Portland, OR 97209  
Email: kvalness@oda.state.or.us

**Christopher Voigt**

Executive Director  
Washington Potato Commission  
108 S. Interlake Rd  
Moses Lake, WA 98837  
Tel: 509-765-8845  
Email: cvoigt@potatoes.com

11/08/2009



**Briefing for delegation with Agricultural Trade Office (ATO) and American Institute in Taiwan (AIT)**

FY09 SCBGP SE Asia Director's Mission November 2009



## **Potato Seminar and Tasting**

FY09 SCBGP SE Asia Director's Mission November 2009



## **Meeting with Taiwan Bureau of Food Safety**

FY09 SCBGP SE Asia Director's Mission November 2009



**Meeting with Bureau of Standards, Metrology, and Inspection (BSMI) Ministry of Economic Affairs Taiwan**

FY09 SCBGP SE Asia Director's Mission November 2009



## **Wholesale market research in Taiwan**

FY09 SCBGP SE Asia Director's Mission November 2009



**Northwest specialty crop products showcase in Manila, Philippines**

FY09 SCBGP SE Asia Director's Mission November 2009



## **Chef Demonstrations**

FY09 SCBGP SE Asia Director's Mission November 2009



## Technical seminar on Oregon/Washington potato varieties and utilization

FY09 SCBGP SE Asia Director's Mission November 2009



## **Chef Demonstration of Oregon/Washington specialty potatoes**

FY09 SCBGP SE Asia Director's Mission November 2009



## **Specialty potatoes**

FY09 SCBGP SE Asia Director's Mission November 2009



## **Oregon/Washington wines**

FY09 SCBGP SE Asia Director's Mission November 2009



## **Briefing on Hong Kong food safety and laws with Agricultural Trade Office Hong Kong**

FY09 SCBGP SE Asia Director's Mission November 2009



## **In-store product showcase and tasting**

FY09 SCBGP SE Asia Director's Mission November 2009



## Hong Kong retail visit and research

FY09 SCBGP SE Asia Director's Mission November 2009

**007 Oregon Specialty Crops to Asia 2010**

*Attachment 1:* Event Photos – Hong Kong

*Attachment 2:* Itineraries – Hong Kong

*Attachment 3:* Event Photos – Shanghai

*Attachment 4:* Itineraries – Shanghai

*Attachment 5:* Event Photos – FoodEx (Japan)

*ThreeSixty retail store audit—Hong Kong*



*GREAT Food Hall Executive Chef Timothy Broderick, discusses the Hong Kong retail market and AS Watson group concepts*



*GREAT Food Hall store audit—Hong Kong*



*Watson's Wine Cellar—Inside GREAT Food Hall—Hong Kong*



*Oregon Product Tasting Event—Hong Kong American Club*



*Anna Goodman of Willamette Valley Vineyards conducts wine tasting—Hong Kong American Club*



*Oregon Fruit Products Berry UP beverage sampling—Hong Kong American Club*



*Trevor Krivoshein of Evergreen Vineyards and Bill Thompson of Five H Winery discuss with customers—Hong Kong American Club*

*Oregon Product Trade Tasting—JW Marriott Hong Kong*



*Desert table featuring various small fruits from Oregon—JW Marriott Hong Kong*



*Dundee Fruit product Preserves Tasting Station—JW Marriott Hong Kong*



*Blueberry Crumble featuring blueberries from Scenic Fruit Company—JW Marriott Hong Kong*



*Three Degrees Winery Tasting Station—JW Marriott Hong Kong*



*Evergreen Vineyards Tasting Station—JW Marriott Hong Kong*



*Willamette Valley Vineyards Tasting Station—JW Marriott Hong Kong*



*Henry Estate Winery Tasting Station—JW Marriott Hong Kong*



*Trade visitors mingle and sample Oregon products—JW Marriott Hong Kong*



*Doyle Hinman discusses Henry Estate Pinot Noir with a customer—JW Marriott Hong Kong*



*Anna Goodman of Willamette Valley Vineyards with a customer—JW Marriott Hong Kong*

**Date/Time      Activity**

**March 8, (Mon)**

9:00 am      Briefing at the US Agricultural Trade Office  
(Mr. Philip Shull, Director)

Address:      18/F., St. John's Building  
33 Garden Road  
Central, Hong Kong  
Tel: 2841-2350

10:00 am      Visit – Three-Sixty Store (Dairy Farm Group) in Landmark  
(Mr. Antony Wong, Store Manager will show the guests around)

Address:      3/F & 4/F Landmark  
Des Voeux Road  
Central, Hong Kong

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(The Dairy Farm Group, a Hong Kong-based retail company that includes supermarket brands such as Wellcome, Three-Sixty and Marketplace etc ThreeSixty is Asia's first true one-stop destination for organic, natural and wholesome food. They offer an extensive range of delicious take-home and ready to eat food options, together with a large range of earth friendly household products, non-chemically based personal care items and wellness related lifestyle products.

**\*\*      Accompanied by Chris Li, ATO HKG Marketing Specialist**

11:00 am      Visit – Great Food Hall (A.S. Watson Group)  
(Mr. Timothy Broderick, Executive Chef of the store, will show the guests around)

Address:      Basement  
Pacific Place, Queensway  
Central, Hong Kong

---

(Great Food Hall is one of the prestigious stores (Park'N Shop) under A.S. Watson Group, Retail Food Division of Hutchison Whampoa Ltd)

**\*\*      Accompanied by Chris Li, ATO HKG Marketing Specialist**

AFTERNOON:      Doyle, Fill in your appts. With Toby here.....

**March 8, (Mon) Continued**

6:00-8:00 pm Oregon Products Tasting and Promotion Event

Address: American Club  
49/F., Exchange Square Two  
Central, Hong Kong  
Attn: Suzanne Storms, Executive Chef  
Dan Chaney, Chef  
Max Ling, Chef  
Tel: 2842-7492

**March 9, (Tue)**

**DOYLE:** [Fill in your appointments with Toby here...](#)

6:30-8:30 pm Oregon Food and Wine Product Tasting Promotional Event

JW Marriott Hotel, Canton Tea Market

Address: Pacific Place  
88 Queensway  
Central, Hong Kong  
Attn: Hector Pliego, Executive Chef  
Tel: 2841-3712

**Itinerary for Dundee Fruit**  
**Mr. Dick Sadler**

*Prepared by DK March 3*

**Hotel:** Excelsior Hotel \_\_\_\_\_  
281 Gloucester Road, Causeway Bay  
Hong Kong  
Tel: 2894 8888  
\_\_\_\_\_281\_

**Date/Time      Activity**

**March 8, (Mon)**

9:00 am      Briefing at the US Agricultural Trade Office  
(Mr. Philip Shull, Director)

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Tel: 2841-2350

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(Mr. Antony Wong, Store Manager will show the guests around)

Address:      3/F & 4/F Landmark  
Des Voeux Road  
Central, Hong Kong  
\_\_\_\_\_

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**\*\*      Mr. Chris Li, Marketing Specialist of USATO will accompany**

11:00 am      Visit – Great Food Hall (A.S. Watson Group)  
(Mr. Timothy Broderick, Executive Chef of the store, will show the guests around)

Address:      Basement  
Pacific Place, Queensway  
Central, Hong Kong  
\_\_\_\_\_

(Great Food Hall is one of the prestigious stores (Park'N Shop) under A.S. Watson Group, Retail Food Division of Hutchison Whampoa Ltd)

**\*\*      Chris Li, Marketing Specialist of USATO will accompany**

LUNCH      Free.

2:30 pm Meeting with Mr. K.Y. Lee, General Manager & Ms. Jenny Chan, Product Manager  
Dah Chong Hong Ltd  
**(Confirmed)**

Address: 8/F., DCH Building  
20 Kai Cheung Road  
Kowloon Bay  
Kowloon  
Tel: 2768-2093/2768-3302

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(DCH exports, imports, re-exports, wholesales and retails a range of food products from around the world, which include edible oils, sugar, soy beans, grains, rice, canned foods, groceries, meat, poultry, seafood, dairy products and other branded food products which are sold to the wholesalers and the food processors throughout Hong Kong and Mainland China. To add to this, the company is also involved in the business of frozen food processing, serving numerous supermarkets and the catering industry in Hong Kong, Macau, Shenzhen, Guangzhou and Shanghai)

\*\* Staff from China Network will accompany

6:00-8:00 pm Attend the Event at the American Club

Address: American Club  
49/F., Exchange Square Two  
Central, Hong Kong  
Attn: Suzanne Storms, Executive Chef  
Dan Chaney, Chef  
Max Ling, Chef  
Tel: 2842-7492

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49

### March 9, (Tue)

9:30 am Meeting with Mr. Orlando Li, CEO, Foodgears Industrial Int'l Ltd  
**(Confirmed)**

Address: Room 3105 New Tech Plaza  
34 Tai Yau Street  
San Po Kong, Kowloon  
Tel: 2322-1222

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34

(Foodgears Industrial International Ltd was founded in 1999. As a professional foodstuff importer, we have been importing from mainly Australia, Germany, Italy, France and Argentina etc. and supplying dairy products, beverages, bakery, confectionary and catering ingredients to food factories, professional caterers, traders, distributors and retail chains in China, Hong Kong and Macau.

\*\* Staff from China Network will accompany

11:00 am Meeting with Ms. Yolanda Che, Health Gate  
**(Confirmed)**

Address: 8/F Hung Tak Building  
106-108 Des Voeux Road  
Central, Hong Kong  
Tel: 2545-2286  
\_\_\_\_\_106\_108\_\_\_\_\_

(Health Gate is a importer, distributor and retailer of health foods with the mission of educating and introducing general public to a new and enlightened attitude towards healthy eating and a healthy lifestyle)

\*\* Staff from China Network will accompany

LUNCH FREE

2:30 pm. Meeting with Mr. Jack Lee, General Manager & Mr. Simon Si, General Manager  
Ping Shan Foods Ltd / Favor Capital International Ltd  
**(Confirmed)**

Address: 2nd Floor, Seaview Commercial Building  
21-24 Connaught Road West  
Sheung Wan, Hong Kong  
Tel: 2858-1188  
\_\_\_\_\_21-24\_\_\_\_\_

(Ping Shan Foods Co Ltd wholly owned by Ping Shan Enterprise Co Ltd operating all food business. The purpose of establishing Ping Shan Foods Co Ltd is to strengthen the food business globally for Ping Shan Enterprise especially with Hong Kong and Chinese clients.

Favor Capital International Ltd also a subsidiary of Ping Shan Foods Co Ltd. It has successfully acquired Viva Italia Supermarket from Max Goal Ltd. The new management aims to bring top quality Italian foods at reasonable price to Hong Kong customers)

\*\* Staff from China Network will accompany

4:00 pm Meeting with Ms. Penny Chow, Section Controller, AEON Jusco Supermarket  
**(Confirmed)**

Address: 3/F., Stanhope House  
736 King's Road  
Quarry Bay, Hong Kong  
Tel: 25653619  
\_\_\_\_\_734\_\_\_\_\_

(AEON, which consists of AEON Co. Ltd.(formerly known as JUSCO Co., Ltd.) and its 112 subsidiaries and 35 affiliated companies. Engaged in a variety of activities primarily related to the retail business, ranging from General Merchandise Stores (GMSs), supermarkets to discount stores, department stores, specialty and convenience stores, as well as financial services, restaurants and shopping center developments. Business activities cover a broad geographical area that includes 10 countries throughout the world, primarily through store operations.

\*\* Staff from China Network will accompany

6:00 pm Arrive at JW Marriott Hotel.

6:30-8:30 pm Attend the Event at JW Marriott Hotel, Canton Tea Market

Address: Pacific Place  
88 Queensway  
Central, Hong Kong  
Attn: Hector Pliego, Executive Chef  
Tel: 2841-3712

\_\_\_\_\_  
\_\_\_\_\_

*F:/shared/promo 2010/itinerary (Dundee fruit). doc*

**Itinerary for the Evergreen Winery**  
**Mr. Trevor Krivoshein**

*Prepared by DK March 3*

**Hotel:** Excelsior Hotel \_\_\_\_\_  
281 Gloucester Road, Causeway Bay  
Hong Kong  
Tel: 2894 8888  
\_\_\_\_\_281\_

**Date/Tim      Activity**

**March 8 (Mon)**

9:00 am      Briefing at the US Agricultural Trade Office  
(Mr. Philip Shull, Director)

Address:      18/F., St. John's Building      \_\_\_\_\_33\_  
33 Garden Road      \_\_\_\_\_  
Central, Hong Kong  
Tel: 2841-2350

10:00 am      Visit – Three-Sixty Store (Dairy Farm Group) in Landmark  
(Mr. Antony Wong, Store Manager will show the guests around)

Address:      3/F & 4/F Landmark  
Des Voeux Road  
Central, Hong Kong  
\_\_\_\_\_

(The Dairy Farm Group, a Hong Kong-based retail company that includes supermarket brands such as Wellcome, Three-Sixty and Marketplace etc)

ThreeSixty is Asia's first true one-stop destination for organic, natural and wholesome food. They offer an extensive range of delicious take-home and ready to eat food options, together with a large range of earth friendly household products, non-chemically based personal care items and wellness related lifestyle products.

**\*\*      Mr. Chris Li, Marketing Specialist of USATO will accompany**

11:00 am      Visit – Great Food Hall (A.S. Watson Group)  
(Mr. Timothy Broderick, Executive Chef of the store, will show the guests around)

Address:      Basement  
Pacific Place, Queensway  
Central, Hong Kong  
\_\_\_\_\_

(Great Food Hall is one of the prestigious stores (Park'N Shop) under A.S. Watson Group, Retail Food Division of Hutchison Whampoa Ltd)

**\*\*      Chris Li, Marketing Specialist of USATO will accompany**

LUNCH      Free.

2:30 pm Meeting with Mr. Ken Li, Director, Cottage Vineyards International Ltd  
**(Confirmed)**

Address: Causeway Bay Tasting Room  
3/F, No. 5 Lan Fong Road  
Causeway Bay, Hong Kong  
(Password of the gate: 3333)  
Tel: Ken # 91808111  
\_\_\_\_\_5\_

\*\* Staff from China Network will accompany

6:00 pm Attend the Event at the American Club.

Address: American Club  
49/F., Exchange Square Two  
Central, Hong Kong  
Attn: Suzanne Storms, Executive Chef  
Dan Chaney, Chef  
Max Ling, Chef  
Tel: 2842-7492  
\_\_\_\_\_49\_

### March 9 (Tue)

9:30 am Meeting with Mr. Stephen Yip, Chairman, Wing Hing Group  
Wing Hing Provisions, Wines & Spirits Ltd  
**(Confirmed)**

Address: Unit A-D, Blk 3, Yau Tong Ind. Bldg.,  
2 Sze Shan Street  
Yau Tong, Kowloon  
Tel: 2340-0183  
\_\_\_\_\_2\_\_\_\_\_3\_

\*\* Staff from China Network will accompany

11:00 am Meeting with Mr. Andrew Manktelow, Senior Sales Manager, ASC Fine Wines  
**(Confirmed)**

Address: Unit 1804, 18/F, Leighton Centre  
77 Leighton Road  
Causeway Bay, Hong Kong  
Tel: 3923 6703  
\_\_\_\_\_77\_

\*\* Staff from China Network will accompany

LUNCH Free.

2:30 pm Meeting with Mr. Roberto Cioaca, Bus. Development Manager,  
Liquid Assets Ltd  
**(Confirmed)**

Address: Grappa's Cellar (Italian Restaurant)  
Jardine House  
1 Connaught Place,  
Central, Hong Kong  
Mobile: 6064-8120 Roberto Cioaca  
\_\_\_\_\_1\_\_\_\_\_

\*\* Staff from China Network will accompany

3:30 pm Meeting with Mr. Mahesh Harilela & Mr. Norio Hattori  
Inter Islands Distribution Limited  
**(Confirmed)**

Address: Unit B, 5/F., Jade Center  
98 Wellington Street  
Central, Hong Kong  
Tel: 3568-3460  
\_\_\_\_\_98\_\_\_\_\_

\*\* Staff from China Network will accompany

6:00 pm Arrive JW Marriott Hotel.

6:30-8:30 pm Attend the Event at JW Marriott Hotel, Canton Tea Market

Address: Pacific Place  
88 Queensway  
Central, Hong Kong  
Attn: Hector Pliego, Executive Chef  
Tel: 2841-3712  
\_\_\_\_\_  
\_\_\_\_\_

**Itinerary for Scenic Fruit**  
**Mr. Joe McMichael / Ms. Monica Liu (UFI Company)**

*Prepared by DK March 3*

**Hotel:** Excelsior Hotel \_\_\_\_\_  
281 Gloucester Road, Causeway Bay  
Hong Kong  
Tel: 2894 8888  
\_\_\_\_\_281\_

**Date/Time      Activity**

**March 8, (Mon)**

9:00 am      Briefing at the US Agricultural Trade Office  
(Mr. Philip Shull, Director)

Address:      18/F., St. John's Building      \_\_\_\_\_33\_  
33 Garden Road      \_\_\_\_\_  
Central, Hong Kong  
Tel: 2841-2350

10:00 am      Visit – Three-Sixty Store (Dairy Farm Group) in Landmark  
(Mr. Antony Wong, Store Manager will show the guests around)

Address:      3/F & 4/F Landmark  
Des Voeux Road  
Central, Hong Kong  
\_\_\_\_\_

(The Dairy Farm Group, a Hong Kong-based retail company that includes supermarket brands such as Wellcome, Three-Sixty and Marketplace etc)

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**\*\*      Mr. Chris Li, Marketing Specialist of USATO will accompany**

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(Mr. Timothy Broderick, Executive Chef of the store, will show the guests around)

Address:      Basement  
Pacific Place, Queensway  
Central, Hong Kong  
\_\_\_\_\_

(Great Food Hall is one of the prestigious stores (Park'N Shop) under A.S. Watson Group, Retail Food Division of Hutchison Whampoa Ltd)

**\*\*      Chris Li, Marketing Specialist of USATO will accompany**

LUNCH      Free.

2:30 pm Meeting with Mr. K.Y. Lee, General Manager & Ms. Jenny Chan, Product Manager  
Dah Chong Hong Ltd (DCH)  
**(Confirmed)**

Address: 8/F., DCH Building  
20 Kai Cheung Road  
Kowloon Bay  
Kowloon  
Tel: 2768-2093/2768-3302

---

(DCH exports, imports, re-exports, wholesales and retails a range of food products from around the world, which include edible oils, sugar, soy beans, grains, rice, canned foods, groceries, meat, poultry, seafood, dairy products and other branded food products which are sold to the wholesalers and the food processors throughout Hong Kong and Mainland China. To add to this, the company is also involved in the business of frozen food processing, serving numerous supermarkets and the catering industry in Hong Kong, Macau, Shenzhen, Guangzhou and Shanghai)

\*\* Staff from China Network will accompany

6:00 pm Attend the Event at the American Club.

Address: American Club  
49/F., Exchange Square Two  
Central, Hong Kong  
Attn: Suzanne Storms, Executive Chef  
Dan Chaney, Chef  
Max Ling, Chef  
Tel: 2842-7492

---

### March 9, (Tue)

9:30 am. Meeting with Mr. Dan Kushner, Managing Director, Etak International Ltd  
**(Confirmed)**

Address: 20/F., Methodist House  
36 Hennessy Road  
Wanchai, Hong Kong  
Tel: 2526-2371

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(ETAK is a leading importer of quality food products into Hong Kong. Founded in 1969, ETAK prides itself on being a full-service food distributor with complete inventory, multi-temperature storage facilities, and logistics services)

\*\* Staff from China Network will accompany

11:00 am. Meeting with Mr. William Lau (in charge of frozen fruit) & Ms. Amy Lo,  
Maxims Group  
**(Confirmed)**

Address: 4/F., Star House  
Tsimshatsui  
Kowloon  
Tel: 2101-1962

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(The Maxim's Group has been established for 46 years since 1956. It is one of the largest group in Hong Kong and operates over 300 outlets including fast food, restaurants & cake shops)

LUNCH FREE

2:30 pm. Meeting with Mr. Roger Wong/Mr. Winson Chan, Purchasing Managers  
Million Far East Ltd  
**(Confirmed)**

Address: 8/F., Million Center  
25-27 Lam Tin Street  
Kwan Chung, New Territories  
Hong Kong  
Tel: 3588 8193  
\_\_\_\_\_25-27\_\_\_\_\_

(Million (Far East) Ltd is an importer and distributor specializing in frozen food supply, marketing, distribution and trading offering a complete range of foods for sales throughout our major markets Hong Kong and Macau)

\*\* Staff from China Network will accompany

4:00 pm. Meeting with Ms. Annie Yu, Buyer, Park'N Shop (A.S. Watson Group)  
**(Confirmed)**

Address: Watson House  
1-5 Wo Liu Hang Road  
Fo Tan, New Territories  
Hong Kong  
Tel: 3521-6227  
\_\_\_\_\_  
\_\_\_\_\_ 1-5 \_

(Park'N Shop is under A.S. Watson Group, Retail Food Division of Hutchison Whampoa Ltd.)

\*\* Staff from China Network will accompany

6:00 pm Arrive at JW Marriott Hotel.

6:30-8:30 pm Attend the Event at JW Marriott Hotel, Canton Tea Market

Address: Pacific Place  
88 Queensway  
Central, Hong Kong  
Attn: Hector Pliego, Executive Chef  
Tel: 2841-3712  
\_\_\_\_\_  
\_\_\_\_\_

*Marco Polo Bakery Outlet Visit—Shanghai*





*High Quality Baked Goods—Marco Polo Bakery Shanghai*



*Dick Sadler (Dundee Fruit), Joe McMichael (Scenic Fruit) and Hugh Eisele (Eisele Farms/Scenic Fruit) meet with Marco Polo company executives—Shanghai*



*Dick Sadler of Dundee Fruit Company in on-on-one meeting with Shanghai importer—Portman Ritz*



*Joe McMichael in on-on-one meetings with Shanghai traders—Portman Ritz*

*Doyle Hinman of Henry Estate pours wine for members of the Shanghai Wine Trade—Portman Ritz Shanghai*



*Trevor Krivoshein of Evergreen Vineyards—Portman Ritz Shanghai*

*Oregon drew a packed room of Shanghai wine trade—Portman Ritz*



*Doyle Hinman of Henry Estate touts the attributes of Oregon wine and food to potential buyers—Portman Ritz Shanghai*

*Marco Polo Bakery Outlet Visit—Shanghai*





*High Quality Baked Goods—Marco Polo Bakery Shanghai*



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*Oregon drew a packed room of Shanghai wine trade—Portman Ritz*



*Doyle Hinman of Henry Estate touts the attributes of Oregon wine and food to potential buyers—Portman Ritz Shanghai*

## **PART II: PROJECT SUMMARY**

The Oregon delegation will arrive in Shanghai on March 10, 2010. And an integrated program will be arranged on March 11, 2010. Following is the tentative schedule for the program:

### **March 10, 2010, Wednesday**

Afternoon (apprx 4 p.m.)

Oregon Delegation Arrives in Shanghai  
Market Briefing at ATO Shanghai (TBD)  
ATO Shanghai

Shanghai Center, Suite 331, No. 1376 Nanjing West Road, Shanghai  
Tel: 86 21 6279 8622  
Fax: 86 21 6279 8336

### **March 11, 2010, Thursday**

#### **➤ For Fruit Company**

8:30

Retail Tour

City Shop Shanghai Center Store

1/F, Shanghai Center, No. 1376 Nanjing West Road, Shanghai  
Tel: 86 21 6279 7077

9:30

Retail Tour

Carrefour Gubei Store

No. 268, South Shuicheng Road, Shanghai  
Tel: 86 21 6209 8899

10:30

Trader Meeting with Bakery Operator Marco Polo  
(Venue TBD)

Back to the Portman Ritz-Carlton Hotel after meeting

\* Transportation will be arranged by SMH

14:30 – 17:30

One-on-one Meetings

Portman Ritz-Carlton Hotel

Meeting Room

No. 1376 Nanjing West Road, Shanghai  
Tel: 86 21 6279 8888

\* Around 9 key local importers and distributors of fruit products will be invited and meetings will be arranged by ATO Shanghai

\* Each U.S. company will have a room to hold one-on-one meetings with traders and outside of the room dry fruit products will be displayed.

- Pre-trained interpreters will be arranged by SMH and allocated to each U.S. company to enhance the communication between two parties.

18:00 – 20:00

## Oregon Product Promotion Event

Portman Ritz-Carlton Hotel

Marble 3

No. 1376 Nanjing West Road, Shanghai

Tel: 86 21 6279 8888

**\* Round Table Setup & Set Menu**

**\* Tasting of the fruit and wine products from Oregon**

**\* Around 70 traders including importers, distributors, retailers and foodservice operators will be invited by SMH to participate in the event.**

- **U.S. companies may continue discussion with the local distributors if necessary during and after the event at the table.**

March 12: Depart for US—Early a.m., depending on flight.

The Oregon delegation will arrive in Shanghai on March 10, 2010. And an integrated program will be arranged on March 11, 2010. Following is the tentative schedule for the program:

**March 10, 2010, Wednesday**

Afternoon (approx 4:30 p.m.)

Oregon Delegation Arrives  
Shanghai

Market Briefing at ATO Shanghai (Freddy Xu,  
Xu Min, Wayne Batwin)

ATO Shanghai

Shanghai Center, Suite 331, No. 1376 Nanjing West Road, Shanghai  
Tel: 86 21 6279 8622  
Fax: 86 21 6279 8336

**March 11, 2010, Thursday (For Wine Companies—Arranged by Xu Min)**

8:15 Departure to Carrefour

9:00 Meeting with Purchasing Manager from Carrefour  
Carrefour Gubei Store

No. 268, South Shuicheng Road, Shanghai  
Tel: 86 21 6209 8899

10:30 Retail Tour and Meeting  
\* Wine Hub

Basement, No. 1205 Kaixuan Road, Shanghai  
Tel: 86 21 5187 6928

11:30 Retail Tour  
\* Napa Reserve

No. 383 Weihai Road, Shanghai  
Tel: 86 21 6340 0408

\* Aussino Wine Cellar  
1/F, No. 147 Weihai Road, Shanghai  
Tel: 86 21 5118 1296

Back to the Portman Ritz-Carlton Hotel after tour

\* Transportation will be arranged by SMH.

16:00 – 17:30 Showcase Event & Wine Tasting

Portman Ritz-Carlton Hotel  
Palace Room  
No. 1376 Nanjing West Road, Shanghai  
Tel: 86 21 6279 8888

\* Each U.S. company will have a table to display its wine products and offer tasting to visitors.

\* Around 35 key wine importers and distributors, F&B managers from hotels and restaurants will be invited by SMH.

\* Communication will be held between U.S. companies and Chinese buyers, with interpretation services provided.

- Wine tasting to highlight the quality and value of the wine products.

18:00 – 20:00      Oregon Product Promotion Event  
Portman Ritz-Carlton Hotel  
Marble 3  
No. 1376 Nanjing West Road, Shanghai  
Tel: 86 21 6279 8888

\* Round Table Setup & Set Menu

\* Tasting of the fruit and wine products from Oregon

\* Around 70 traders including importers, distributors, retailers and foodservice operators will be invited by SMH to participate in the event.

\* U.S. companies may continue discussion with the local distributors if necessary during and after the event at the table.

**March 10, 2010, Wednesday**

Afternoon (approx 4:30)

Oregon Delegation Arrives in Shanghai  
Market Briefing at ATO Shanghai (TBD)

**ATO Shanghai**

Shanghai Center, Suite 331, No. 1376 Nanjing West Road,  
Shanghai

Tel: 86 21 6279 8622

Fax: 86 21 6279 8336

**March 11, 2010, Thursday**

8:30

Retail Tour

**City Shop Shanghai Center Store**

1/F, Shanghai Center, No. 1376 Nanjing West Road, Shanghai

Tel: 86 21 6279 7077

9:30

Retail Tour

**Carrefour Gubei Store**

No. 268, South Shuicheng Road, Shanghai

Tel: 86 21 6209 8899

10:30

Trader Meeting with Bakery Operator Marco Polo  
(Venue TBD)

Back to the Portman Ritz-Carlton Hotel after meeting

\* Transportation will be provided by SMH.

14:30 – 17:30

One-on-one Meetings

Portman Ritz-Carlton Hotel

Meeting Room

No. 1376 Nanjing West Road, Shanghai

Tel: 86 21 6279 8888

\* Around 9 key local importers and distributors of fruit products will be invited and meetings will be arranged by ATO Shanghai

\* Each U.S. company will have a room to hold one-on-one meetings with traders and outside of the room products will be displayed.

\* Pre-trained interpreters will be arranged by SMH and allocated to each U.S. company to enhance the communication between two parties.

18:00 – 20:00

Oregon Product Promotion Event

Portman Ritz-Carlton Hotel

Marble 3

No. 1376 Nanjing West Road, Shanghai

Tel: 86 21 6279 8888

\* Round Table Setup & Set Menu

\* Tasting of the fruit and wine products from Oregon

\* Around 70 traders including importers, distributors, retailers and foodservice operators will be invited by SMH to participate in the event.

- U.S. companies may continue discussion with the local distributors if necessary during and after the event at the table.

March 12: Depart for US—Early a.m., depending on flight.

*FOODEX Show Booths--Tokyo*



*FOODEX show booths--Tokyo*



**FOODEX Show Booths--  
Tokyo**



*FOODEX Hall Entry--*



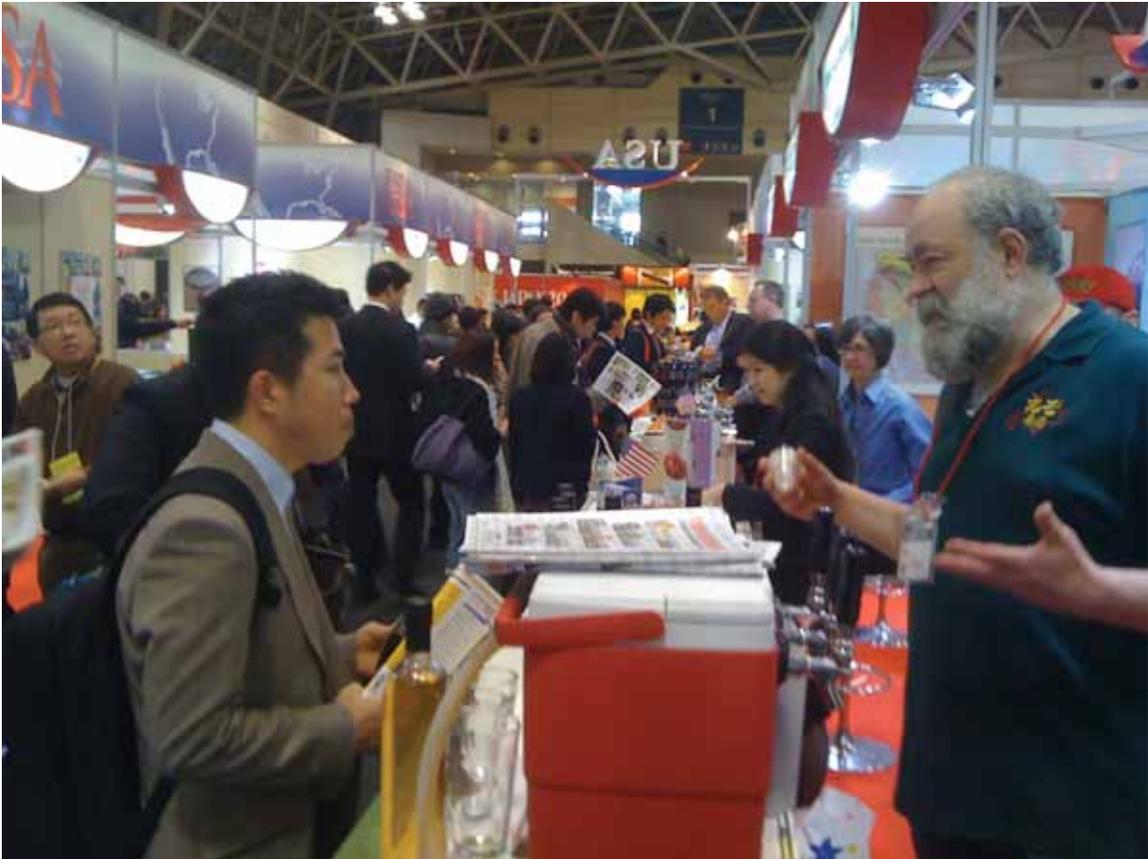
*Tokyo*



*Dey Tu of Oregon Fruit Products answers customer questions at FOODEX*



*Mamoru Fukumoto of FM Corp/Dundee Fruit discusses business at FOODEX*



*Phred Kaufman, representative for Rogue Ales, talks with a customer at FOODEX*



*Joe McMichael of Scenic Fruit Company meets with buyers at FOODEX*



*Doyle Hinman (Henry Estate), Bill Thompson (FH) and Anna Goodman (Willamette Valley Vineyards) conduct wine tasting for customers at FOODEX*

**008 Supporting Community Gardens**

*Attachment 1: Photos*

**August 20<sup>th</sup>, 2011 – Depaving event with over 60 volunteers**



**February 17, 2012 - Volunteer Work  
Party to spread mulch – Ugh!**



**March 24<sup>th</sup>, 2012 – Volunteer Work party to build paths and garden plots**



**April 14, 2012 – Volunteer Planting  
work party – Natives and Blueberries**



## April 28, 2012 – Garden Opening Celebration

**You're Invited!**  
**to the Frazer Community Garden Grand Opening**  
**Saturday, April 28, 10 a.m.-Noon**

Come tour the new garden, see gardening demonstrations, help create pollinator art including painting bees and butterflies to decorate the fence, and enjoy snacks and refreshments. The garden is located at Frazer Park at NE 52nd & Hawsalo.

**Schedule of Events:**

- 10 a.m.-Noon: Garden tours, general information, Q&A, and family activities
- 10:30 a.m.: Garden dedication
- 11 a.m.: Spring Veggie Gardening demonstration

PORTLAND PARKS & RECREATION  
Portland Parks & Recreation



The finished garden has a productive first season – August 2012.



Mason and his parents come to the garden every day. He is an “expert” weeder.



**009 Oregon Fruit and Berry Culinary Promotion Campaign**

*Attachment 1:* Tri-fold Brochure for Luscious Campaign

*Attachment 2:* Photography for Luscious Campaign

*Attachment 3:* Event Photos – Shanghai

# GATHERING PLEASURE

By Kim Stafford

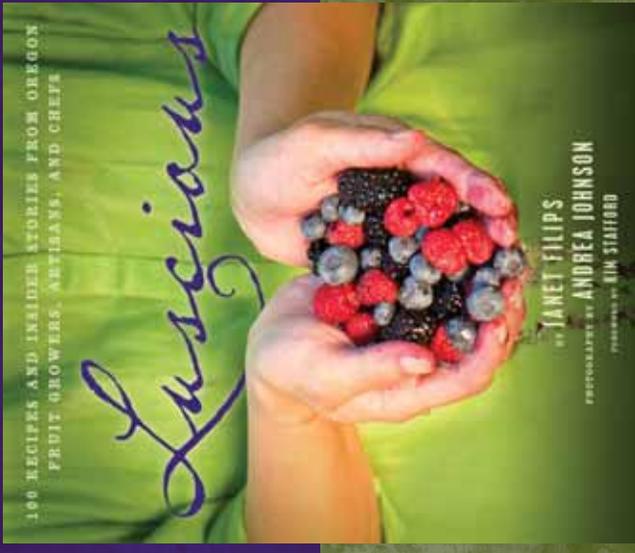
In the beginning, our way was to gather. We wandered the hills, strode through meadows, rambled thickets and groves, seeking by instinct the places where the land offered abundance. The earth had worked out a living contract, whereby bees, bats, and butterflies would pollinate the blossoms, these flowers would fatten into fruit, and our hands would pluck what sweetened there. This rambling for sustenance yet remains the oldest thing we do.

And this beginning happens in the life of every lucky child—the setting out to find bounty. When I was three, my family crossed a trestle from our home in Tualatin to find an abandoned farm on an indelible summer day. I remember nothing from that time like I remember the fallen apples sweetened at the bruise, pears rolling into tousel grass, plums dropping on my head as my brother shook the branch, blackberries filling my fist, then my mouth.

This gathering, sharing, eating, savoring is what we do when we are happy. So say the word with me: *Luscious*. Say, with the tongue's affection: *delicious Oregon Strawberry*. Taste the syllables *Pear, Pear Tart, Pear eau de vie*. Dwell at the origin point of honest delight by speaking the alphabet of pleasures: *Apple, Cherry, Cranberry, Apricot, Peach*. Say to a child, *Would you like some Boysenberries. Here's the bowl*. Take all you want. Say to a guest from afar, until today in exile from Oregon Eden: *Let's pick blackberries. They're on.*



# YOU JUST HAVE TO TASTE IT



## CELEBRATING OREGON'S FRUIT GROWERS, ARTISANS, AND CHEFS



[www.oregon.gov/ODA/](http://www.oregon.gov/ODA/)



[www.arnicacreative.com](http://www.arnicacreative.com)

# Luscious

OREGON

**F**ruit, I have found, is woven into Oregon's psyche and sparks animated stories on par with great moments in sports. Native Oregonians grow up surrounded by a wealth of fruit that is as much a part of their childhoods as swings and storybooks. Newcomers are astounded—and remain so. The firmness of the cherries, the sweetness of the watermelons! The size of the boysenberries! So many kinds of blueberries and strawberries! Wild blackberries all over the place!

Oregon's fruit is astounding. And the idea behind *Luscious* is to capture and share some of the remarkable history and passion of the state's superlative fruit industry, then help you put those fruits on your plate or in your glass. While fruits have their season, processors big and small—and home cooks—have devised ways to make them part of your menu year round.

So I'll continue checking packages for Oregon ingredients, whether in a jar of jam, a container of ice cream, or a bag of frozen berries. Because, as David Yudkin, co-owner of Hot Lips Soda, told me, "You can't describe the wonderfulness of Oregon fruit."

You just have to taste it.

—JANET FILIPS, AUTHOR, LUSCIOUS



## Strawberry Rhubarb Tarts

MAKES 8 SERVINGS

### INGREDIENTS

For Crust  
2 1/3 cups all-purpose flour  
3 cups cake flour  
1/2 cup sugar  
1 1/2 teaspoon salt  
12 ounces butter, cold, cubed  
2 egg yolks  
1/4 teaspoon almond extract  
1/2 cup (approx.) cold water

### For Filling

1 1/2 cup sugar  
1/3 cup cornstarch

2 1/2 pounds rhubarb, sliced in half lengthwise and cut into 1-inch pieces  
1 pint strawberries, hulled and sliced  
Zest from 1 lemon  
Juice from 1 lemon  
1 vanilla bean, scraped

### For Assembly

1 egg  
2 tablespoons water  
1 cup turbinado sugar

### DIRECTIONS

**For Crust:** Sift together the all-purpose flour, cake flour, sugar, and salt. Cut in cold butter until the butter is in pea-size chunks. Add egg yolks and almond extract. Add enough cold water for the dough to come together and remain pliable. Form into a disk, wrap in plastic and let chill at least 1 hour.

**For Filling:** Sift sugar and cornstarch. Combine with rhubarb, strawberries, lemon zest, lemon juice, and vanilla bean, and set aside.

Heat oven to 425°F.

Divide the dough into 8 equal pieces. Let sit at room temperature until soft, but still cool, about 10 minutes. On a floured surface, roll each piece into a 5-inch circle. Mound a heaping 1/4 cup filling in center, leaving a 1/2-inch border around the edge. Fold edges up and over filling, crimping and sealing as you go. Leave a 1/2-inch opening in center where filling is exposed. Freeze until set, at least 1 hour.

Whisk 1 egg and 2 tablespoons water until combined. Brush tops of crust with this egg wash and sprinkle heavily with turbinado sugar. Bake until crust is golden and filling is bubbling, about 20 to 25 minutes.

To serve, dust with powdered sugar and a scoop of vanilla bean ice cream.

PHOTOGRAPHER © 2010 ANDREA JOHNSON

## Blueberry Raspberry

Dessert Sauce

MAKES ABOUT 3/4 CUPS.

I've had this smudged old newspaper recipe for years and love its simplicity, beauty, and great flavor. It makes a light dessert for lunches or after a hearty dinner. It also gives a homemade impression, even though the pound cake might be store-bought. You can easily have all ingredients on hand, including frozen, for a last-minute lovely dessert. It's even good as a fancy jam on toast.

### INGREDIENTS

3 cups fresh or frozen blueberries (divided)  
1 cup fresh raspberries or 1 (10-ounce) package frozen (I also substitute marionberries and other berry varieties)  
1/4 to 1/2 cup granulated sugar  
1/3 cup water (divided)  
1 tablespoon cornstarch  
2 tablespoons almond-flavored liqueur  
see note for substitutions  
Mint sprigs for garnish (optional)

### DIRECTIONS

Combine 2 cups of the blueberries, the raspberries, sugar and 1/4 cup water in a 2-quart saucepan; stir to mix. Bring the mixture to boil over medium-high heat.

Whisk together the cornstarch and remaining water; stir into the blueberry mixture and return to boil. Add remaining blueberries; cook and stir gently 2 to 3 minutes or until thoroughly heated. Add liqueur and mix well.

**Note:** The following substitutions may be made for the almond liqueur:

1. Two tablespoons lemon juice and 1 teaspoon grated lemon peel.
2. One teaspoon vanilla and 1 teaspoon ground cinnamon.
3. Two tablespoons ginger-flavored liqueur.

**SERVING TIPS:** Serve sauce over vanilla ice cream, angel food cake, or pound cake. Garnish with mint sprigs, if desired.

From Gretchen Olson, *Calya Fruit*

From Andrew Arndt, *executive chef, Aquariva*

# GATHERING PLEASURE

By Kim Stafford

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MAKES 8 SERVINGS

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1/2 cup sugar  
1 1/2 teaspoon salt  
12 ounces butter, cold, cubed  
2 egg yolks  
1/4 teaspoon almond extract  
1/2 cup (approx.) cold water

### For Filling

1 1/2 cup sugar  
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2 1/2 pounds rhubarb, sliced in half lengthwise and cut into 1-inch pieces  
1 pint strawberries, hulled and sliced  
Zest from 1 lemon  
Juice from 1 lemon  
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### For Assembly

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2 tablespoons water  
1 cup turbinado sugar

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**For Filling:** Sift sugar and cornstarch. Combine with rhubarb, strawberries, lemon zest, lemon juice, and vanilla bean, and set aside.

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PHOTOGRAPHER © 2010 ANDREA JOHNSON

From Andrew Arndt, executive chef, *Aquariva*

## Blueberry Raspberry

*Dessert Sauce* MAKES ABOUT 3/4 CUPS.

I've had this smudged old newspaper recipe for years and love its simplicity, beauty, and great flavor. It makes a light dessert for lunches or after a hearty dinner. It also gives a homemade impression, even though the pound cake might be store-bought. You can easily have all ingredients on hand, including frozen, for a last-minute lovely dessert. It's even good as a fancy jam on toast.

### INGREDIENTS

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1 cup fresh raspberries or 1 (10-ounce) package frozen (I also substitute marionberries and other berry varieties)  
1/4 to 1/2 cup granulated sugar  
1/3 cup water (divided)  
1 tablespoon cornstarch  
2 tablespoons almond-flavored liqueur  
see note for substitutions  
Mint sprigs for garnish (optional)

### DIRECTIONS

Combine 2 cups of the blueberries, the raspberries, sugar and 1/4 cup water in a 2-quart saucepan; stir to mix. Bring the mixture to boil over medium-high heat.

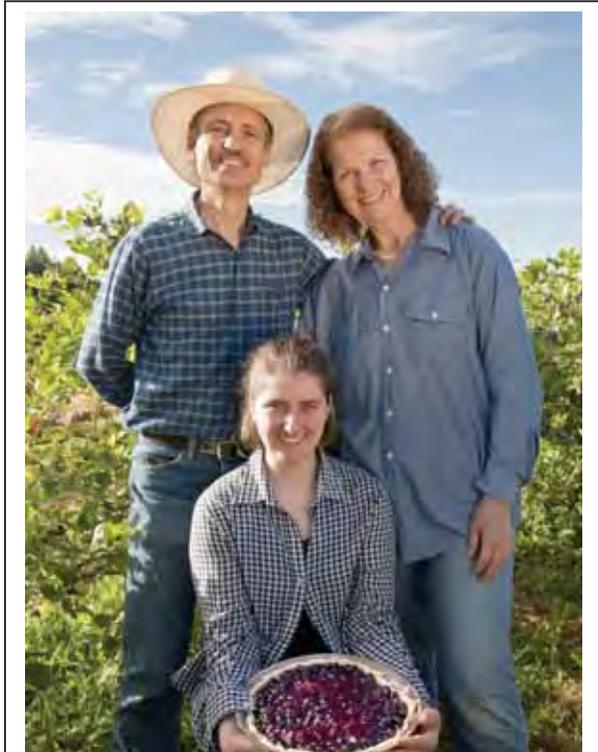
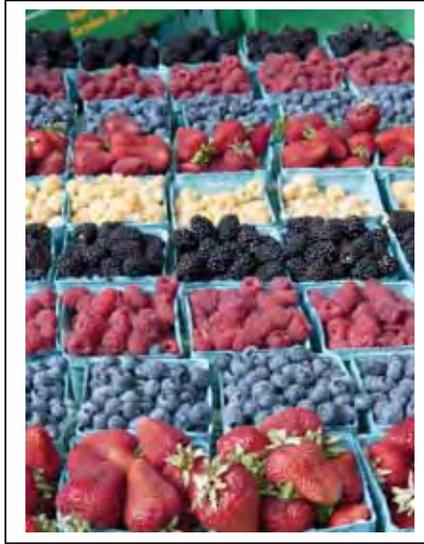
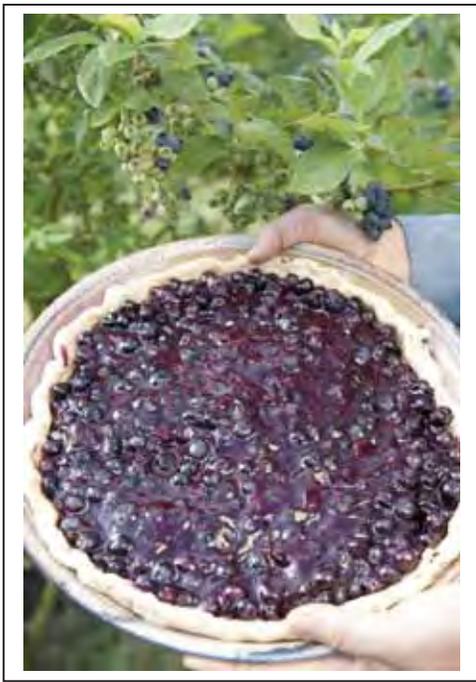
Whisk together the cornstarch and remaining water; stir into the blueberry mixture and return to boil. Add remaining blueberries; cook and stir gently 2 to 3 minutes or until thoroughly heated. Add liqueur and mix well.

**Note:** The following substitutions may be made for the almond liqueur:

1. Two tablespoons lemon juice and 1 teaspoon grated lemon peel.
2. One teaspoon vanilla and 1 teaspoon ground cinnamon.
3. Two tablespoons ginger-flavored liqueur.

**SERVING TIPS:** Serve sauce over vanilla ice cream, angel food cake, or pound cake. Garnish with mint sprigs, if desired.

From Gretchen Olson, *Calya Fruit*



**S10 Integrated Pest Management, Conservation Programs and Reduction in Environmental Impacts for Specialty Crop Industries in Umatilla County, Oregon with Blue Mountain Horticultural Society**

*Attachment 1: Newspaper Advertisements*

The **Blue Mountain Horticulture Society** wishes to  
thank its Sponsors for supporting the  
Annual Research and Extension Meeting

## PLATINUM

Sam LeFore Fruit Farms, Inc.  
The McGregor Company  
Suterra LLC

Umatilla County Community Development

## GOLD

Blue Mountain Growers, Inc.  
Earl E. Brown & Sons, Inc.  
Cockburn Distributing Company, Inc.  
Crop Production Services, Inc.  
Monterey AgResources  
Nufarm Americas, Inc.

Pacific Biocontrol Corporation  
Rodighiero Orchards, Inc.  
Mike Swinnerton State Farm Agency  
Walla Walla Farmers Co-op  
Wilbur-Ellis Company

## SILVER

Agreeable Pest Control  
Bisnett Insurance, Inc.  
C & O Nursery  
Country Financial  
Davis Orchards, Inc.  
DL & JJ Farms, Inc.  
Edwards Farm

Extenday USA, Inc.  
Gowan Company  
Darrell and Jeanne Hanan  
Hermann Orchards  
Kilmer's Auto Parts, Inc.  
Don LeFore Farm  
Monahan, Grove & Tucker

Northwest Farm Credit Services  
Les Schwab  
Tree Top, Inc.  
Trumbull Orchards  
Van Well Nursery  
Widner Electric & Industrial, Inc.  
Wilson Orchard and Vineyard Supply

Walla Walla Union Bulletin,  
Sunday, April 18, 2010.

*The Blue Mountain Horticulture Society*

wishes to

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Walla Walla Farmers Co-op  
Wilbur-Ellis  
Monterey AgResources  
Nufarm Americas, Inc.  
Rodighiero Orchards, Inc.

## SILVER

Agreeable Pest Control  
Bisnett Insurance, Inc.  
C & O Nursery  
Country Financial  
Davis Orchards, Inc.  
DL & JJ Farms, Inc.  
Edwards Farm  
Extenday USA, Inc.  
Gowan Company  
Darrell and Jeanne Hanan  
Hermann Orchards

Kilmer's Auto Parts, Inc.  
Don LeFore Farm  
Monahan, Grove & Tucker  
Northwest Farm Credit Services  
Les Schwab  
Tree Top, Inc.  
Trumbull Orchards  
Van Well Nursery  
Widner Electric & Industrial, Inc.  
Wilson Orchard and Vineyard  
Supply

Valley Herald,  
Friday, April 23, 2010.

Valley Herald  
Summer 2010

**PUBLIC NOTICE**  
**Cherry Fruit Fly Alert**

To all cherry growers including homeowners with backyard cherry trees. You should be spraying your trees at  
**1-week intervals**

with a chemical that is labeled for Cherry Fruit Fly. Follow the label instructions.

If you have questions, call  
Clive Kaiser at 541-861-9552 or  
Darrell Hanan at 509-386-6252.

**PUBLIC NOTICE**  
**Codling Moth Alert**

To all homeowners with apples-all varieties of crabapples-pears-walnuts or any host of codling moth.

You should be spraying your trees  
**every 2 weeks**

with a pesticide that is labeled to control codling moth.  
Read the label and follow the instructions.

If you have any questions contact  
Clive Kaiser at 541-861-9552 or  
Darrell Hanan at 509-386-6252.

## Cherry Fruit Fly Alert

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97357 rh

Walla Walla Union-Bulletin  
Summer 2010

## Codling Moth Alert

To all homeowners with apples—all varieties of crabapples—pears—walnuts or any host of codling moth. You should spray your trees every two weeks with a pesticide that is labeled to control codling moth. Read the label and follow the instructions. If you have any questions, contact Clive Kaiser at 541-861-9552 or Darrell Hanan at 509-386-6252.

97358 rh

## Cherry Fruit Fly Alert

To all cherry growers, including homeowners with backyard cherry trees: You should be spraying your trees at 1-week intervals with a chemical that is labeled for Cherry Fruit Fly. Read the label and follow the instructions. If you have any questions, contact Clive Kaiser at 541-938-5597 or Darrell Hanan at 509-386-6252.

97400

Walla Walla Union-Bulletin  
Revised  
Summer 2010

## Codling Moth Alert

To all homeowners with apples—all varieties of crabapples—pears—walnuts or any host of codling moth. You should spray your trees every two weeks with a pesticide that is labeled to control codling moth. Read the label and follow the instructions. If you have any questions, contact Clive Kaiser at 541-938-5597 or Darrell Hanan at 509-386-6252.

97601

**S11 Testing for Pesticide Residue in Treasure Valley Onions with Certified Onions, Inc.**

*Attachment 1:* Print Advertisements

*Attachment 2:* Logo Design and Collateral

*Attachment 3:* Sampling Information

*Attachment 4:* Background Information and Application

# Certified Onions Inc.

**We check so you don't have to!**

**Certified Onions Inc.** is a non-profit organization committed to the integrity and safety of onions marketed from the Treasure Valley of Idaho-Eastern Oregon.

- ✓ 3rd party field and shed testing for pesticide residues and presence of pathogens provided by Oregon Department of Agriculture
- ✓ Certification of tested onions provided by Oregon Department of Agriculture
- ✓ Low cost and effective certification process for members



## **MEMBERS**

Allendale Produce Co.  
Baker Packing Company • Boise River Pack, Inc.  
Champion Produce, Inc. • De Boer Farms, LLC  
Dickinson Frozen Foods, Inc. • Fiesta Farms, Inc.  
Fort Boise Produce Co. • Frahm-Fresh Produce • Giant Produce  
Golden West Produce LLC • Haun Packing • Jamieson Produce, Inc.  
J.C. Watson Co. • McCain Foods USA • Murakami Produce • Ontario Produce Co.  
Oregon Trail Produce, Inc. • Owyhee Produce • Snake River Produce Co., LLC  
Standage Farms, Inc. • Tamura Farms, Inc. • West Wind Produce

*Certified Onions Inc., P.O. Box 1606, Nyssa, OR 97913*  
email: [mail@certifiedonions.com](mailto:mail@certifiedonions.com) • [www.certifiedonions.com](http://www.certifiedonions.com)

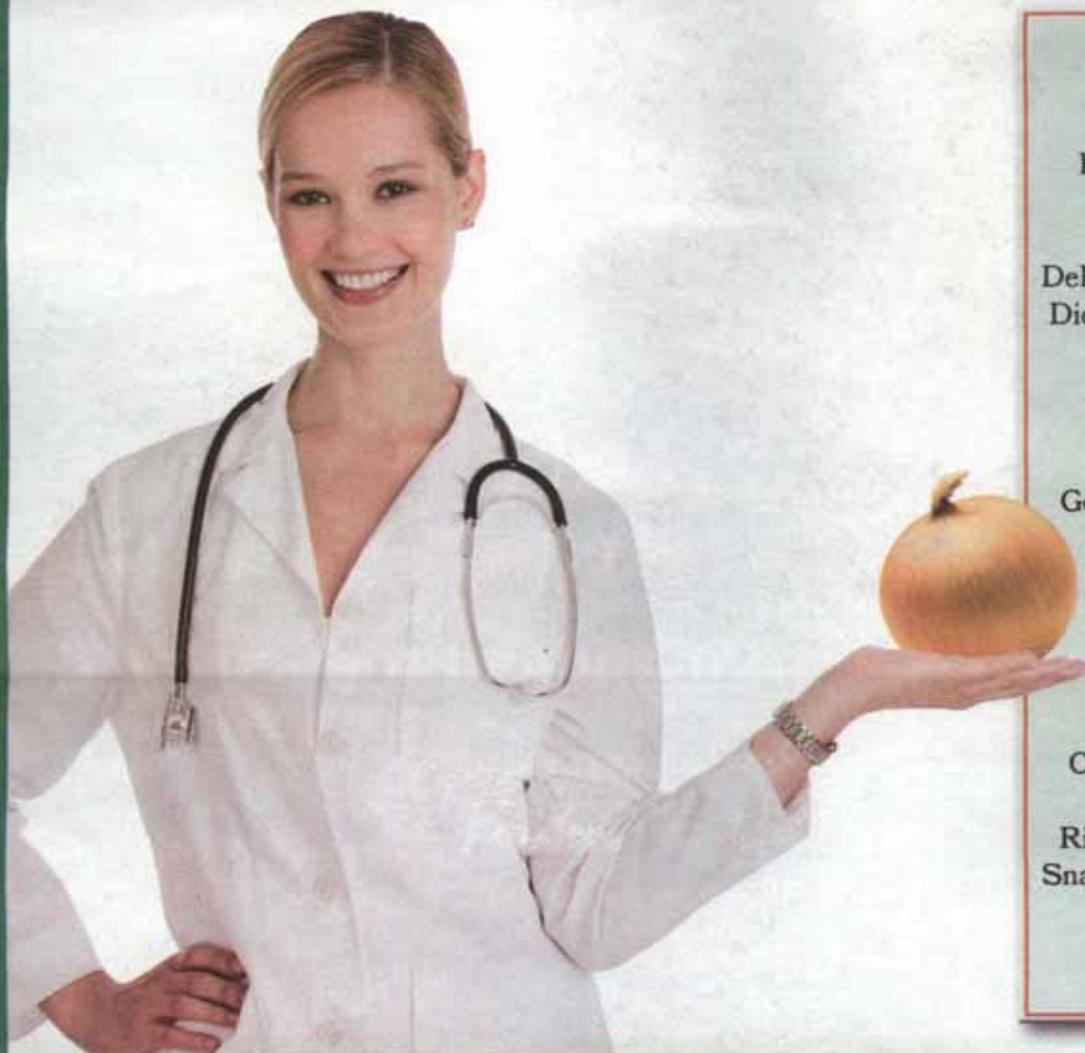
✦ The PACKER ✦

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- u Low cost and effective certification process for members



## Members

Allendale Produce Co.  
Baker Packing Company  
Boise River Pack, Inc.  
Champion Produce  
DeBoer Farms, LLC (shallots)  
Dickinson Frozen Foods, Inc.  
Fiesta Farms, Inc.  
Fort Boise Produce Co.  
Frahm-Fresh Produce  
Giant Produce  
Golden West Produce LLC.  
Haun Packing  
Jamieson Produce, Inc.  
J.C. Watson Co.  
McCain Foods USA  
Murakami Produce  
Ontario Produce Co.  
Oregon Trail Produce, Inc.  
Owyhee Produce  
Riverfront Produce Co. LLC  
Snake River Produce Co., LLC  
Standage Farms Inc.  
Tamura Farms, Inc.  
West Wind Produce

Certified Onions Inc, P.O. Box 1606, Nyssa, OR 97913  
email: [mail@certifiedonions.com](mailto:mail@certifiedonions.com) • [www.certifiedonions.com](http://www.certifiedonions.com)







**Certified Onions, Inc. is a Non Profit Organization committed to Ensuring the Integrity and Safety of Onions marketed from the Idaho-Oregon growing area through Third Party field and Facility testing of onions for pesticide residues and the presence of undesirable pathogens.**

## **MEMBERS**

[certifiedonions.com](http://certifiedonions.com)

Allendale Produce Co.  
Baker Packing Company  
Boise River Pack, Inc.  
Champion Produce, Inc.  
Dickinson Frozen  
Foods, Inc.  
Fiesta Farms, Inc.  
Fort Boise Produce Co.  
Frahm-Fresh Produce  
Giant Produce  
Golden West Produce LLC.  
Haun Packing

Jamieson Produce, Inc.  
J.C. Watson Co.  
McCain Foods USA  
Murakami Produce  
Ontario Produce Co.  
Oregon Trail Produce, Inc  
Owyhee Produce  
Snake River  
Produce Co., LLC  
Standage Farms, Inc  
Tamura Farms, Inc.  
West Wind Produce



**INDEPENDENT** Member Organizations  
**Committed** to Safe Onion Standards.

**FACILITATORS** of Progressive **Food Safety** Programs Promoting Good Agricultural Practices, Good Handling Practices and Bulb Testing



Industry **NETWORK** Providing **Integrity**  
Through Certified Third Party Sampling, Testing  
and Audit Controls

# ONION DISTRIBUTION FLOW

## Traditional Distribution

\*GAP Producer



\*GHP Packer



Purchaser

## Certified Onions, Inc. Distribution

### "ODA" Commodity Inspection Division

- Sample Procurement
- Sample Preparation
- Sample Retention



### "ODA" Laboratory & Testing



GHP Packer



Certified Onion INC  
"Member"  
Purchaser

Good Agricultural Practices  
Good Handling Practices  
Oregon Department of Agriculture

# Certified Onions, Inc Provides Options...

## MULTIPLE SAMPLING TYPES

### FIELD

- Direct Link to Grower
- GPS Documentation
- Observed Growing Conditions

### STORAGE

- Positive Lot Identity
- Post-Harvest Custody and Control
- Secured Storage Environment

### IN-LINE

- Graded Produce
- Observed Handling and Packaging Practices



*Certified Onion, Inc's sampling and testing  
protocol's have been developed in cooperation with  
the Oregon Department of Agriculture.*



## **MULTIPLE TEST TYPES**

**LIMITED:** Screen for Non-labeled Pesticide Usage on Onion Crops

**FULL:** MRL Screen Developed for Idaho/Oregon Onion Crops

**MICROBIAL:** Testing for Undesirable Pathogens Utilizing Variable Methods

*Utilizing USDA standards and procedures, these contracted "ODA" services ensure quality and integrity are maintained throughout the "COP" process*





# CERTIFIED ONIONS, INC.

*We check so you don't have to!*

## MEMBERSHIP DIRECTORY

### ALLENDALE PRODUCE CO.

P.O. Box 1060  
Homedale, ID 83628  
Phone: 208-377-4025  
Fax: 208-337-3324

### BAKER PACKING CO.

P.O. Box 217  
Ontario, OR 97914  
Phone: 541-889-9663  
Fax: 541-889-9376  
steve.baker@fmtc.com  
bill.baker@fmtc.com

### BOISE RIVER PACK, INC.

P.O. Box 149  
Notus, ID 83656  
Phone: 208-454-8924  
Fax: 208-454-8918

### CHAMPION PRODUCE, INC.

26358 Sand Road  
Parma, ID 83660  
Phone: 208-722-5800  
Fax: 208-722-5844  
www.championproduce.com

### DICKINSON FROZEN FOODS, INC.

P.O. Box 1010  
Fruitland, ID 83619  
Phone: 800-886-4326  
Fax: 208-452-5365  
www.df-foods.com  
customerservice@df-foods.com

### FIESTA FARMS, INC.

P.O. Box 1606  
Nyssa, OR 97913  
Phone: 541-372-3600  
Fax: 541-372-2474  
fiesta@fiestafarmsinc.com

### FORT BOISE PRODUCE CO.

28519 Hwy 20-26  
Parma, ID 83660  
P.O. Box 1545  
Nyssa, OR 97913  
Phone: 800-252-8665  
or 208-674-3202  
Fax: 208-674-3208  
ken@fortboise.com  
www.fortboise.com

### FRAHM-FRESH PRODUCE

418 King Avenue  
Ontario, OR 97914  
Phone: 541-889-2424  
Fax: 541-889-2424  
dreamonions@yahoo.com

### GIANT PRODUCE

P.O. Box 145  
Parma, ID 83660  
Phone: 208-722-6777  
Fax: 208-722-7018  
piproduce@frontiernet.com  
www.giantproduce.com

### GOLDEN WEST PRODUCE LLC.

418 Commercial Avenue  
Nyssa, OR 97913  
Phone: 541-372-3122  
Fax: 541-372-3186  
goldenwestproduce@msn.com

### HAUN PACKING

734 West Idaho  
Weiser, ID 83672  
Phone 208-414-3030  
Fax 208-414-8728  
haunon@hotmail.com

### J.C. WATSON CO.

P.O. Box 300  
Parma, ID 83672  
Phone: 208-722-5161  
Fax: 208-722-6646  
kents@soobrand.com  
www.soobrand.com

### JAMIESON PRODUCE, INC.

P.O. Box D  
Vale, OR 97918  
Phone: 541-473-3274  
Fax: 541-473-3313  
jpi@fmtc.com

### MCCAIN FOODS USA

555 Hickory Farm Lane  
Appleton, WI 54912  
Phone: 920-997-2486  
Phone: 208-452-6311  
Fax: 208-452-6314  
bob.simerly@mccain.com  
clay.crim@mccain.com

### MURAKAMI PRODUCE

1431 SE 1st Street  
P.O. Box 9  
Ontario, OR 97914  
Phone: 800-421-8814  
Fax: 541-889-2933  
cwoo@potandon.com  
ggabica@potandon.com

### ONTARIO PRODUCE CO.

P.O. Box 880  
Ontario, OR 97914-0880  
Phone: 541-889-6485  
Fax: 541-889-7823  
bob@ontarioproduce.net

### OREGON TRAIL PRODUCE, INC.

P.O. Box 2488  
Nyssa, OR 97913  
Phone: 541-372-5075  
Fax: 541-372-3956

### OWYHEE PRODUCE

1445 North 3rd St.  
Nyssa, OR 97913  
Phone 541-610-0410  
Fax 541-372-5131  
www.owyheeproduce.com

### SNAKE RIVER PRODUCE CO, LLC.

P.O. Box 1727  
Nyssa, OR 97913  
Phone: 541-372-2537  
Fax: 541-372-5788  
kayriley@snakeriverproduce.com  
www.snakeriverproduce.com

### STANDAGE FARMS INC.

1825 Hwy 20  
Vale, OR 97918  
Phone: 541-473-2127  
Fax: 541-473-2604

### TAMURA FARMS, INC.

17535 Hwy 95  
Wilder, ID 83676  
Phone: 208-337-4636  
or 208-722-5800  
Fax: 208-337-4781  
tamurafarms@hotmail.com

### WEST WIND PRODUCE

15 Holly Road  
Ontario, OR 97914  
Phone: 541-262-3292  
or 208-573-1070



# Oregon

Tim W. Wheeler, Governor

Department of Agriculture

655 Capitol Street NE

Salmon, OR 97301-2542



## The Oregon Department of Agriculture Awards Certified Onions, Inc.

The Oregon Department of Agriculture is awarding Certified Onions, Inc. the **Excellence in Marketing** in March 2010. Certified Onions Inc. was formed by shippers from both Oregon and Idaho as an Oregon non-profit corporation tasked with creating this program along with the help and advice of Oregon Department of Agriculture and industry experts. Certified Onion recognizes that the market place is looking for credible testing and certification to satisfy customers in both the domestic and international marketplace. Certified Onion has looked to the future and decided to offer a program to ensure that the products marketed under this program meet a rigorous standard and that their customers can have a great deal of confidence in it.

As part of their program, the Oregon Department of Agriculture provides official governmental sampling and testing of onion bulbs. Testing consists of both pesticide residues and desirable pathogens. The Oregon Department of Agriculture's laboratory has state of the art equipment and highly trained staff.

Food Safety is a priority for the consumer and COI hopes that by providing these services the Oregon/Idaho onion industry will become the leader in the trade while providing a framework for future certification standards for the entire onion industry.



Certified Onions, Inc Board Members



# OREGON DEPARTMENT OF AGRICULTURE

## SAMPLING DRY BULB ONIONS

### General:

- These instructions are guidelines for official samples taken by ODA
- Ensure the sample taken is representative of the lot
- The sample taken is handled in a way as to not contribute to the contamination or deterioration of the sample
- The sample taken is positively identified and the chain of custody is maintained

### Description:

1. Determine where the commodity samples are to be obtained (such as field, storage, in-line, and end of line/finished product), using the submitted application
2. Using Table 1 determine how many samples you will need
3. Using Table 2 determine the minimum sample size
4. Using Table 3 determine how many sub-samples will be needed
5. Clean and sanitize any sampling equipment needed (sanitation)
6. Take sub-samples in accordance to sample method (as to sample location) and combine into one sample, into a clean paper bag
7. Label the paper bag using a permanent marker with date, lot, sampler etc.
8. Seal sample into a clean polyethylene bag, sealed in a way to show if the bag has been tampered with
9. Complete application form and attach to the sample
10. Complete chain of custody form and attach to the sample
11. Clean and sanitize all sample equipment used (sanitation)

*Table 1-Samples needed*

You will need one sample for each lot	
A lot is a commodity that is separated by:	Grower
	Field- (see definition)
	Variety
	Container Markings
	Designation

*Table 2-Sample Size*

Commodity	Minimum Sample Size
Onions	6 pounds/ 2.721 Kilograms

Table 3-How many sub-samples

Hyper-geometric Table for Random Sampling	
Total number of inspectional units (such as plot size, bins, containers.)	Randomly select this number of primary samples to inspect
1-10	10
11-12	11
13	12
14-15	13
16-17	14
18-19	15
20-22	16
23-25	17
26-28	18
29-32	19
33-38	20
39-44	21
45-53	22
54-65	23
66-82	24
83-108	25
109-157	26
158-271	27
272-885	28
886-200,000	29

\*Reference from USDA Export Program Manual

Sanitation

- It is vital to avoid contamination of the field sample during sample collection, transport, and subsequent operations.
- Use new sample containers of suitable type and adequate strength
- Avoid contamination of the samples by hands and clothes which may have come into contact with pesticides
- Do not transport samples for analysis in vehicles carrying pesticide formulations
- **Clean and sanitize equipment using this method:**
  - Wash equipment using a water and bleach solution
  - Rinse equipment off using water
  - Dry the equipment
  - Rinse equipment with isopropyl alcohol

## Sampling Equipment List

- New sample containers of suitable type and adequate strength
- Shovel/trowel
- Scissors
- Rubber boots
- Rubber gloves
- Cleaning cloths
- Bleach/water mixture in plastic tub for cleaning equipment
- Stapler
- Storage container for bagged samples
- Application forms/chain of custody forms
- Permanent marker
- Container to hold cleaned equipment
- Official Seal
- New bag to hold application/chain of custody forms
- GPS

## Sampling Methods

### Field Sampling

- Capture GPS coordinates and document
- Sanitize equipment that could come in contact with the commodity
- After determining how many sub-samples are needed
  - o Example: 20 acre field= 16 sub-samples
  - o This is a minimum, if 16 sub-samples does not net the minimum sample weight, then more sub-samples will need to be taken
- Enter the field at a corner so that you can cross the field at the longest cross section, corner to corner.
- As you cross, stop at equidistant points and select one marketable onion
  - o Do not damage or cut the onion
  - o Avoid taking diseased or undersized onions at a stage when they would not normally be harvested
  - o Take care not to remove surface residues during handling, packing, or preparation
- Place the sub-samples into one paper sample container

### Storage Sampling

- Document location
- Sanitize equipment that could come in contact with the commodity
- After determining how many sub-samples are needed
  - o Example: 300 bin lot=28 sub-samples
  - o This is a minimum, if 28 sub-samples does not net the minimum sample weight, then more sub-samples will need to be taken
- Samples should be taken from various locations from the storage area and should include bins from the lower layers and from stacks in the center as well as from the more readily accessible upper layers or stacks near the doorway
  - o You should always have in mind the possibility that selected bins may have been placed where they would be most available as samples
- From the bins selected, sample one marketable onion
  - o Do not damage or cut the onion
  - o Avoid taking diseased or undersized onions
  - o Take care not to remove surface residues during handling, packing, or preparation
- Place the sub-samples into one paper sample container

### In-line Sampling

- Document location
- Sanitize equipment that could come in contact with the commodity
- After determining how many sub-samples are needed
  - o Example: 300 bin lot=28 sub-samples
  - o This is a minimum, if 28 sub-samples does not net the minimum sample weight, then more sub-samples will need to be taken
- Sub-samples can be collected at packaging, before product is closed into finished container
- Sampling should be taken in timed intervals, ensuring that about the same amount of time has elapsed between each sub-sample
- Select one marketable onion for each sub-sample
  - o Do not damage or cut the onion
  - o Avoid taking diseased or undersized onions
  - o Take care not to remove surface residues during handling, packing, or preparation
- Place the sub-samples into one paper sample container

### End of Line/Finished Product Sampling

- Document location
- Sanitize equipment that could come in contact with the commodity
- After determining how many sub-samples are needed
  - o Example: 500 bag/carton lot=27 sub-samples
  - o This is a minimum, if 27 sub-samples does not net the minimum sample weight, then more sub-samples will need to be taken
- Containers to be sampled should be taken from various locations of the finished stacked product and should include containers from the lower layers and from stacks in the center as well as from the more readily accessible upper layers or stacks near the outside
  - o You should always have in mind the possibility that selected containers may have been placed where they would be most available as samples
- From the containers selected, sample one marketable onion
  - o Do not damage or cut the onion
  - o Avoid taking diseased or undersized onions
  - o Take care not to remove surface residues during handling, packing, or preparation
- Place the sub-samples into one paper sample container

### Labels and Records

- Label each sample with the appropriate identification
- Samples must include completed application records and completed chain of custody forms
- Protect these records by enclosing them in protective bags
- The sampler should keep a duplicate copy of these records
- All samples should be sealed with an official seal, secured in a way as to show if the sample has been tampered with

### Safety

- Samplers should consider safety before performing any sampling activities at any location

### Safety in Field

- Before entering fields, have permission from the grower
- Ask grower of any pesticide re-entry restrictions
- Make sure field roads and paths are dry to insure your safety
- Watch for and stay clear of field machinery in and around the field

### Safety in Storage, In-line, End of line/Finished Product

- Do not walk under suspended loads
- Lift trucks have the right away in packing facilities
- Always make eye contact with the lift truck operators so they are aware of your presence
- Always keep all tools such as knives, gloves and boots in a safe place
- Be aware of pinch points, and avoid them

### Definitions

- Field: a location that has one variety, is separated from other locations by roads and ditches
- Lot: a commodity separated by field, variety, designation, container markings, or size
- Marketable commodity: a specimen that is mature and is not defective enough to sell
- Sample: is the complete sample made up of sub-samples from one lot
- Sub-sample: a stop or a place that you select one or more marketable specimens, that once all are collected, make a complete sample

# CERTIFIED ONIONS, INC.

*A non-profit organization committed to insuring the integrity and safety of onions marketed from the Treasure Valley through third party field and shed testing for pesticide residues and the presence of pathogens*



## **Certified Onions Inc.**

**Introduction:** Certified Onions Inc. is a Non Profit Organization committed to insuring the integrity and safety of onions marketed from the Treasure Valley through third party certification

In order to accomplish this we are implementing a program which consists of:

- Third Party field and shed testing of onions for pesticide residues and the presence of pathogens.
- Provide a low cost and effective system for Third Party certification
- Establish and maintain a web site listing certified participants and relevant information
- Provide networking opportunities
- Provide a Seal for 100% participation
- Provide the framework for future "Safe Onion Standards" Certified Onions Inc, an Oregon Corporation. Garry Bybee from Fiesta Farms is our registered agent.

The corporation address is

Certified Onions Inc.  
PO Box 1606  
Nyssa, Oregon 97913  
Phone 541-372-2600

**Membership:** It costs \$1,000 to become a member of Certified Onions Inc. This money is non refundable. A membership Certificate will be issued; maintenance and general expense fees will be split equally among the members. It is anticipated that there will be some annual dues, but, these will be minimal.

**Sampling Fees:** For members sampling fees will be at cost, but fees must be prepaid. A grower or non-member may have their onions sampled and certified, but, the cost of these samples must be prepaid and an appropriate administration fee will be charged. Sampling: We will sample the onions and have them tested for pesticide residues and the presence of pathogens such as Salmonella and E coli.

**Administration:** The Company will establish and maintain a Board of Directors. It is anticipated that this board will consist of 7 members with terms of office being established on 1, 2 and 3 year terms. The Board of Directors will grant the approval for new member applications and make any decisions regarding the use of services by any non-members.

**Field Identification:** Each field will be assigned a location number and a GPS coordinate will be associated with that number. All testing will be identified by the location number and or GPS coordinate.

**Certification:** Samples will be taken by the Oregon Department of Agriculture, an independent third party. Samples will be submitted to the state laboratory. The results of these samples will be the property of *Certified Onions Inc. and the person paying for the testing*. Any sharing of this information will be at the discretion of the individual who paid for the testing. In order to receive a "Seal of Approval" all acreage of onions from that grower or shipper will need to be sampled and tested.

**Sampling:** It is anticipated that sampling will begin approximately 10 days before harvest. In order for this process to be cost effective and workable for the labs, members will need to provide a schedule for testing of their fields. Sampling of onions from the storage or the packing shed will be allowed, but, the onions will not have certification until the results of testing are received.

## **Sampling and Testing Protocol**

**Application Forms:** A sample application form will be required for each field that will be sampled. Each color will require a separate sample form. The application form will include field identification, color, and acreage. The field will then be given an identification number and Oregon Department of Agriculture will assign a GPS Coordinate.

**Sampling:** Sampling will be conducted by the Oregon Department of Agriculture

Inspection Office. They will pull one sample for each field using established hyper geometric tables for random sampling. Up to five (5) samples will be grouped together for each lab test. If no detection is found all of the samples are then certified. If there is any detection then each sample will be tested to find the source of the detection.

**Testing:** Will be done at approved laboratory facilities. It is anticipated that Oregon samples will be submitted to the Oregon Department of Agriculture Laboratory in Portland and Idaho Samples submitted to the Idaho Department of Agriculture Laboratory in Twin Falls. Other approved testing facilities may be used. The use of these labs may be altered depending on pricing, turnaround time and other factors. One test will be run on up to 5 samples. If that test is a no detect then all of those acres are certified. If a test comes back positive all of the samples will be tested individually. No certification will be allowed on any of those onions in the test until retesting is done and individual sample tests are negative. Those acres in the negative tests will then be certified. In the event there is a positive test in the retesting of the individual samples, that information will be shared with the respective Departments of Agriculture for investigation of possible misuse or off label use of a pesticide.

## **BOARD OF DIRECTORS**

<b>President</b>	<b>Kay Riley</b>	<b>541-372-2537</b>
<b>Vice-president, treasurer</b>	<b>Garry Bybee</b>	<b>541-372-2248</b>
<b>Secretary</b>	<b>John Wong</b>	<b>208-722-5800</b>
<b>Director</b>	<b>Ken Stewart</b>	<b>208-674-3200</b>
<b>Director</b>	<b>Bill Trask</b>	<b>541-889-9663</b>
<b>Director</b>	<b>Bob Komoto</b>	<b>541-889-6485</b>
<b>Director</b>	<b>Tim Burnett</b>	<b>208-452-1635</b>

## **OREGON DEPARTMENT OF AGRICULTURE**

**Casey Prentiss 541-889-5274**

Administrative services provided by:

Lonny Hytrek CPA, PC

2880 SW Fourth Ave. Suite 1

Ontario, OR 97914

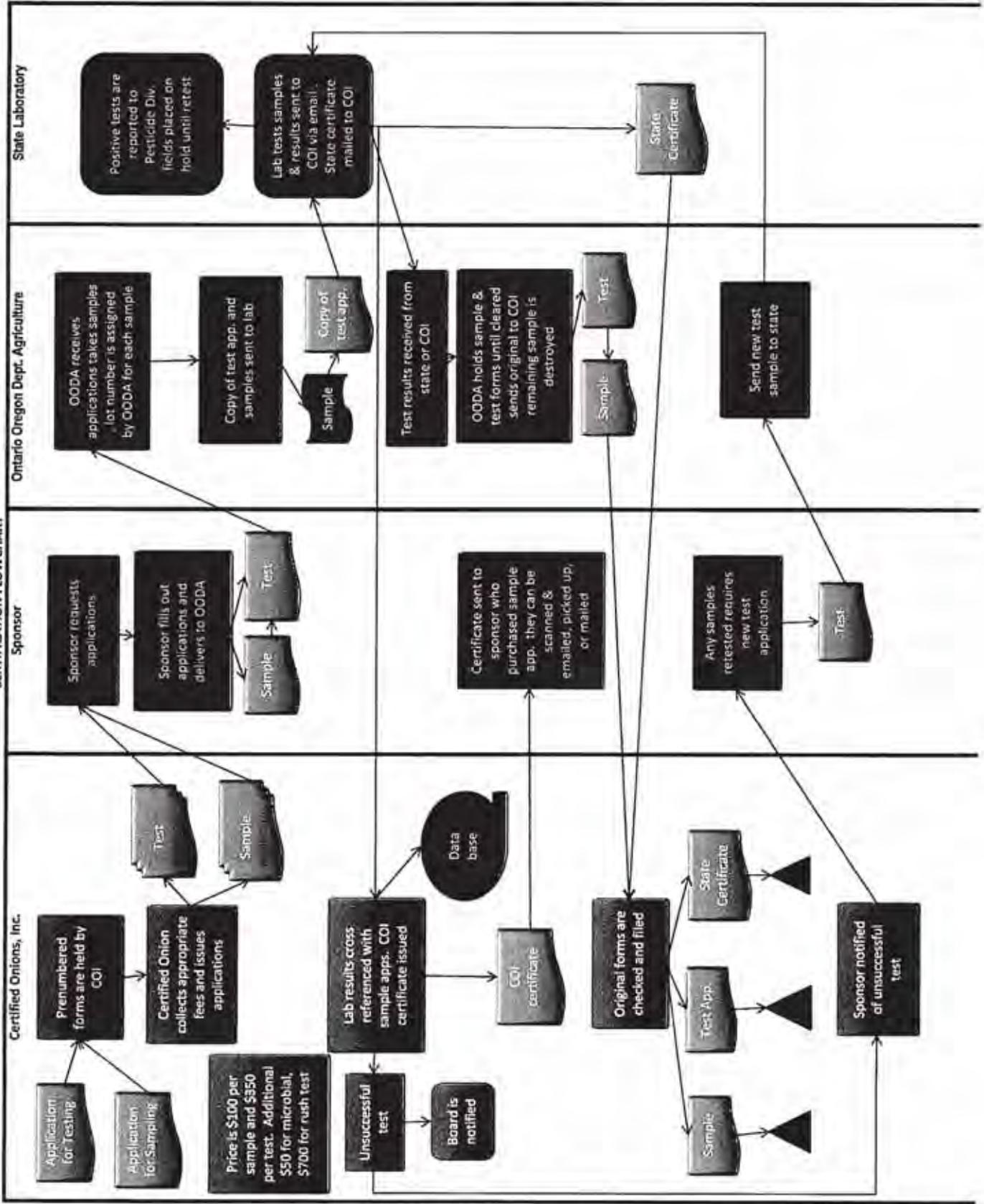
541-889-5318

541-889-4018 fax

[lhytrek@hytrekcpa.com](mailto:lhytrek@hytrekcpa.com)

**CERTIFIED ONIONS, INC.**

**CERTIFICATION FLOWCHART**



Certificate Number \_\_\_\_\_

# CERTIFIED ONIONS, INC.

## MEMBERSHIP CERTIFICATE

The Board of Directors of Certified Onions, Inc. certifies that \_\_\_\_\_  
is a member in good standing.

Signed this day \_\_\_\_ of \_\_\_\_\_ in the year of \_\_\_\_\_.

\_\_\_\_\_

President

Vice President

Membership certificates are non-transferable.

# CERTIFIED ONIONS, INC.

## MEMBERSHIP APPLICATION



Date		
Name of Company		
Contact person		
Address		
Phone number		
Cell number		
email address		

Membership fee:

Check number	Amount

Person or persons authorized to receive Certified Onions, Inc. testing results:

Name	Office number and/or extension	email address

The applicant agrees to abide by all rules and regulations of the organization and commits to the principal of pesticide free onions.

Signed \_\_\_\_\_

For Certified Onions, Inc. use only:

Membership fees received	
Date approved by Board	
Membership Certificate Number	

Certified Onions, Inc.  
Application for Sampling

s- ~~100095~~

*All chemical applications must be completed before submitting this application. Complete all the fields in the client section of the application with the best possible information. Please submit a separate application for each lot to be sampled. Incomplete applications will be returned and subject to delay before being processed for sampling.*

**Client Information**

GROWER BUSINESS NAME/CONTACT NAME			SPONSOR NAME		
ADDRESS			ADDRESS		
CITY	STATE	ZIP	CITY	STATE	ZIP
TELEPHONE	CELL		TELEPHONE	CELL	
FAX			FAX		
FIELD CONTACT PERSON			TELEPHONE/CELL		
CROP/VARIETY			LOT/FIELD ID		
ACRES			ESTIMATED HARVEST DATE		
DATE OF LAST CHEMICAL APPLICATION			RE-ENTRY INTERVAL		

MAKE A SIMPLE LINE DRAWING OF THE FIELD LOCATION, INCLUDING: GEOLOGICAL REFERENCE (I.E., NORTH), LANDMARKS SUCH AS BUILDINGS, FIELD ROADS, PUMPS, AND COUNTY LINES. IF THE FIELD IS NOT ON A MAIN ROAD, PLEASE INDICATE THE DISTANCE IN TENTHS OF MILES FROM THE ROAD OR A LANDMARK.

GPS LAT/LONG:

*Signatures indicate you have requested sampling and agree to have ODA sample from the field designated above.*

SIGNATURE OF GROWER		SIGNATURE OF SPONSOR	
DATE		DATE	
<p><i>To expedite sampling, you may fax completed application to ODA, however original must be received before sampling occurs.</i></p>		Oregon Dept. Of Agriculture P.O. Box 459 Ontario, Oregon 97914 Fax: (541) 889-5077	ODA DATE STAMP

**THIS SECTION FOR ODA USE ONLY**

SAMPLED AT	GPS LOCATION
DATE/TIME COLLECTED	SAMPLED BY

Certified Onions, Inc.  
Application for Testing

T- ~~800024~~

Complete all the fields in the client section of the application with the best possible information. A maximum of five fields/lots can be included in one test. Incomplete applications will be returned and subject to delay before being processed for analysis.

Client Information					
GROWER BUSINESS NAME/CONTACT NAME			SPONSOR NAME		
ADDRESS			ADDRESS		
CITY	STATE	ZIP	CITY	STATE	ZIP
TELEPHONE		CELL	TELEPHONE		CELL
FAX			FAX		
TEST REQUESTED <input type="checkbox"/> Onion Screen <input type="checkbox"/> Onion Microbial			RUSH <input type="checkbox"/> Yes <input type="checkbox"/> No		*Checking yes will increase cost
Lot #1	APPLICATION FOR SAMPLING #		ODA ASSIGNED LOT NUMBER		
Lot #2	APPLICATION FOR SAMPLING #		ODA ASSIGNED LOT NUMBER		
Lot #3	APPLICATION FOR SAMPLING #		ODA ASSIGNED LOT NUMBER		
Lot #4	APPLICATION FOR SAMPLING #		ODA ASSIGNED LOT NUMBER		
Lot #5	APPLICATION FOR SAMPLING #		ODA ASSIGNED LOT NUMBER		
<i>Signatures indicate you have requested analysis of the fields/lots described above. A positive lab test will be forwarded to regulatory authorities.</i>					
SIGNATURE OF GROWER			SIGNATURE OF SPONSOR		DATE
To expedite analysis, you may fax completed application to ODA, however original must be received before analysis occurs.			Oregon Dept. Of Agriculture		ODA DATE STAMP
			P.O. Box 459 Ontario, Oregon 97914 Fax: (541) 889-5077		
THIS SECTION FOR ODA USE ONLY					
DATE OF SAMPLE PREPARATION			PREPARED BY		
DATE RECEIVED IN LABORATORY			RECEIVED BY		

Remarks:

**CERTIFIED ONIONS, INC.  
SAMPLING AND TESTING APPLICATION ORDER FORM**

Date

Sponsor Name

Sample Applications	Testing Applications		
	Standard	With Microbial	Rush
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
X      \$ 100.00	X      \$ 350.00	X      \$ 400.00	X      \$ 700.00
Total	Total	Total	Total
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Grand Total**

Fax or email to:  
Certified Onions, Inc.  
C/O Lonny Hytrek, CPA PC  
(541) 889-4018

[kbeltz@hytrekcpa.com](mailto:kbeltz@hytrekcpa.com)  
[lhytrek@hytrekcpa.com](mailto:lhytrek@hytrekcpa.com)

If you have questions call our office at (541) 889-5318  
My personal cell phone number is (208) 230-4883  
Office location:  
2880 SW Fourth Ave. Suite 1  
Ontario, OR 97914  
(First office on the left at Canyon Village, corner of SW Fourth  
Ave. and Yuturi Beltline)  
Lonny Hytrek, CPA

*If you fax or email this form to our office we can have your package of forms ready when you come in.*

**S12 Retail Distribution and Sales Promotion of Specialty Crop Products in Southern China  
and Hong Kong with China Network, LLC**

*Attachment 1: Photos of Promotion*

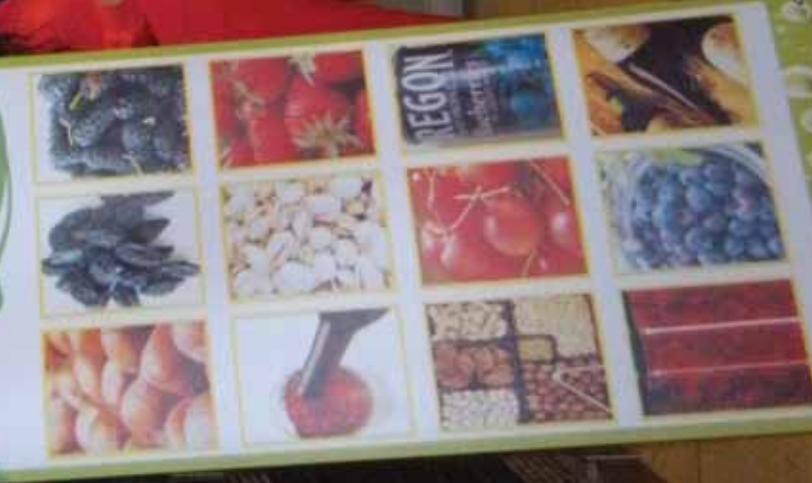
break?

Rest home

ODA 美国 俄勒冈州 农业厅  
Oregon Department of Agriculture  
1001 俄勒冈州 农业厅

ODA 美国 俄勒冈州 农业厅  
Oregon Department of Agriculture  
美国 俄勒冈州 农产品

ODA 美国 俄勒冈州 农业厅  
Oregon Department of Agriculture  
美国 俄勒冈州 农产品



REGON  
Department of Agriculture



ODA 美国 俄勒冈州 农业厅  
Oregon Department of Agriculture  
美国 俄勒冈州 农产品



REGON  
Department of Agriculture



ODA 美国 俄勒冈州 农业厅  
Oregon Department of Agriculture  
美国 俄勒冈州 农产品



REGON  
Department of Agriculture



Thank you for shopping

ODA 美国 俄勒冈州 农业厅  
Oregon Department of Agriculture  
美国 俄勒冈州 农产品



myl.fying.com  
中国网络

好

又

好

e r M a r k e t 北桥店



# 好又多

TRUST-MART

入 □ ENTRAN

营业时间  
OPEN  
8:00~23:00  
全年无休  
EVERY DAY

亚洲医药

Advertisement for Asia Pharmacy featuring a doctor and medical staff. The text includes "亚洲医药" and "买就送" (Buy and get a gift).

好又多  
店庆狂欢  
买就送

好又多  
店庆狂欢  
买就送

亚洲医药



A small promotional sign with various product images and text, likely advertising a sale or promotion.

MA break?



美国 俄勒冈州 农产品  
Oregon Department of Agriculture  
Oregon's Natural Treasures



禁止烟火

华润万家

vanguard

生活超市  
superstore

入口 Welcome

出口 Exit Only



# WAL★MART SUPERCENTER 沃尔玛购物广场



低价!

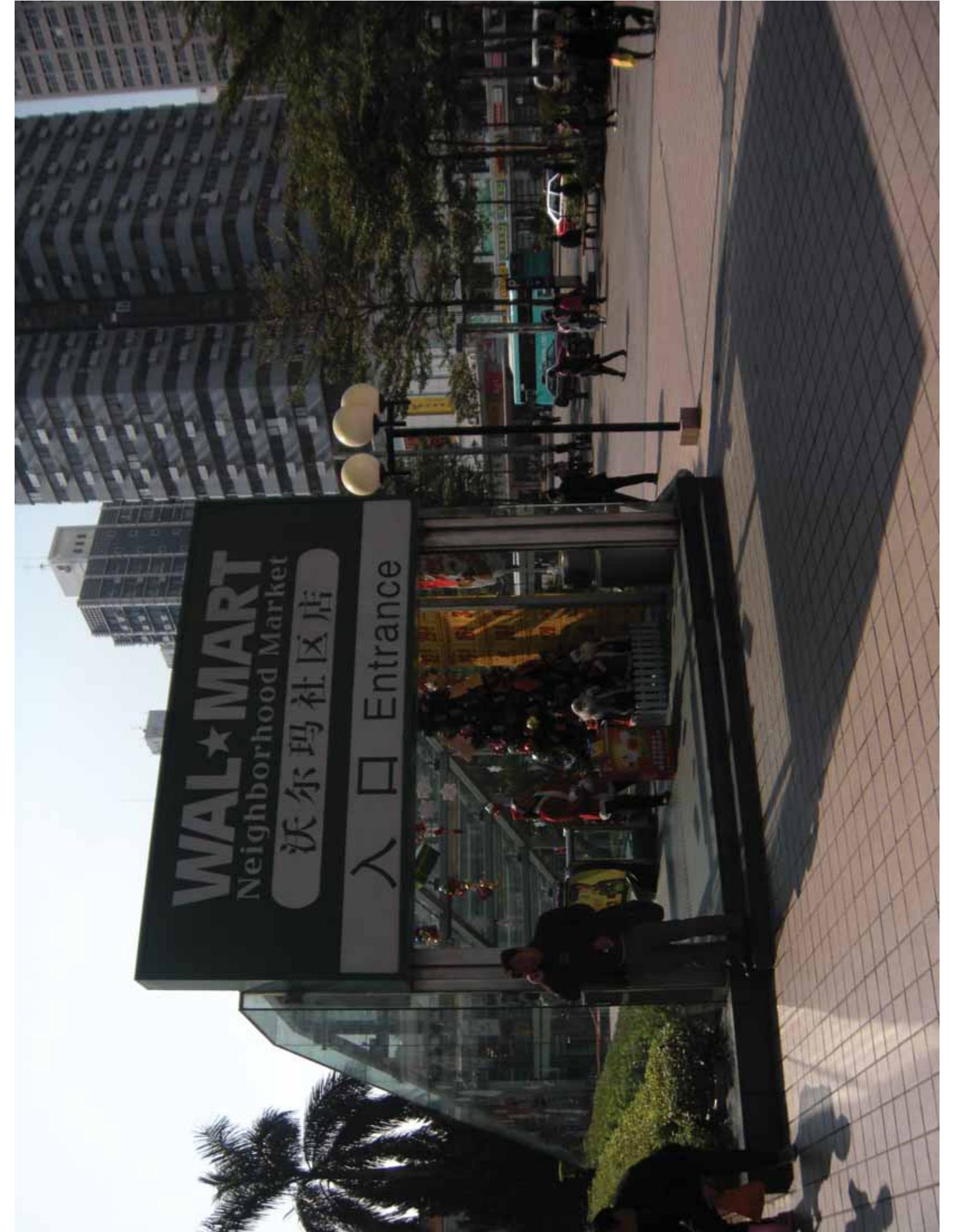
WALMART  
SUPERCENTERS



**WAL★MART**  
Neighborhood Market

沃尔玛社区店

入口 Entrance



**WAL★MART**

Neighborhood Market

沃尔玛社区店

入口 Entrance

中国

中国

7:30 - 23:00

中国



民生商品 限时狂

1	10
39.90	7.80
2	2
20	20

ODA 美国 俄勒冈州 农业厅  
Oregon Department of Agriculture  
美国 俄勒冈州 农产品



**S15 Increasing Efficiency and Market Access with FoodHub in cooperation with Ecotrust**

Attachment 1: Marketing and Promotion MASTER LIST (Oct 1, 2009-Sep 30, 2010)

Attachment 2: Press Release, “USDA Undersecretary Ann Wright to Visit Oregon to Promote

Agency’s ‘Know Your Farmer, Know Your Food’ Initiative”

Attachment 3: Press Release “Northwest Bakery ISO Local, Organic Peaches”

Attachment 4: Article *Sustainable Business Oregon*, “Kane gets nod for work with farmers”

Attachment 5: Sample Postcard

Attachment 6: Press Release “FoodHub Serves Up its Second Course”

Attachment 7: Article *Willamette Week*, “Grow Food, Will Travel”

Attachment 8: Article *Register Guard*, “FoodHub is an online resource linking area food buyers with the region’s farmers and food processors”

Attachment 9: Article *Register Guard*, “GUEST VIEWPOINT: Rural communities benefiting From local food movement”

Attachment 10: Article *Capital Press*, “Champ of Rural Oregon”

Attachment 11: Press Release “Learn How to Build Wholesale Food Sales and Source Local Food Products”

**FOODHUB Marketing and Promotion: MASTER LIST**

Time Period: October 1, 2009 - Sept 30, 2010



**EARNED MEDIA**

9/23/2010	Capital Press	Weekly	<b>FoodHub Focuses on Connecting</b>
9/1/2010	Main Ingredient	Monthly	<b>Winning Ideas: Innovative Use of Technology in Food</b>
8/31/2010	FoodDay, Oregonian	Daily	<b>Buyers, sellers dig into FoodHub</b>
6/15/2010	AgLink	Monthly	<b>Reprint of Main Ingredient</b>
5/15/2010	Main Ingredient	Monthly	<b>Feature story on buying local with FoodHub</b>
5/12/2010	Willamette Week	Weekly	<b>Q&amp;A with Deborah Kane</b>
5/1/2010	Fast Company	Magazine	<b>Portland selected as one of 12 great cities thanks to FoodHub</b>
4/3/2010	Capital Press	Weekly	<b>Event links sellers, buyers</b>
3/19/2010	Sustainable Business Oregon	Newspaper	<b>Kane gets nod for work with farmers</b>
3/8/2010	Fast Company	Blog	<b>Eat-onomics with Deborah Kane of FoodHub, a Match.com for Locavores</b> Q&A with Deborah Kane regarding FoodHub
3/5/2010	Fast Company	Blog	<b>Eat-onomics: The Ten Most Inspiring People in Sustainable Food</b> Kane honored for FoodHub work
2/5/2010	Capital Press	Newspaper	<b>USDA pushes local foods, exports</b> Sub: Undersecretary helps launch FoodHub in Portland
2/4/2010	OPB	Radio	<b>FoodHub will connect local farmers with customers</b>
2/3/2010	OPB	Radio	<b>Online 'Food Hub' Connects Farmers With Buyers</b>
2/3/2010	Oregonian	Print	<b>FoodHub Links Northwest Fresh Food Buyers with Producers</b>
2/3/2010	Oregon Business Magazine	Blog	<b>FoodHub Launches, Matchmaking Service for Food Buyers and Sellers</b>
2/3/2010	Sustainablefoodnews.com	Online News	<b>Ecotrust's new online food database connects buyers and sellers</b> Sub: FoodHub to Encourage Growth in NW Food Sales
1/26/2010	KLCC Radio Eugene	Radio	FoodHub Mention
12/16/2009	KBOO Food Show	Radio	<b>FoodHub</b>
12/9/2009	OregonLive.com	Blog	<b>Ecotrust launches site that links food buyers and farmers</b>
12/1/2009	Sustainable Industries Journal	Blog	<b>New site connects farmers, buyers</b>
11/25/2009	Food Lover's Guide to Portland	Blog	<b>FoodHub: Ecotrust's Newest Venture</b>
11/16/2009	Huffington Post	Blog	<b>B.Y.O.G.</b> Editorial lauding FoodHub

11/16/2009 CleanOregon.com	Website	<b>Ecotrust Launches FoodHub</b> Press release reprinted
10/30/2009 Capital Press	Newspaper	<b>Computer system links farmers with buyers</b> Mitch Lies writes about the release of FoodHub
10/26/2009 Natural Resource Report	Online Mag	<b>\$1.5 million and 24 projects help Oregon Ag</b>

**NEWSLETTERS: Print and Online**

7/6/2010 Sustainable Food News	Enewsletter	Grocery chain underwrites membership to online marketplace
6/28/2010 Springwise	Enewsletter	Site connects food buyers and sellers
4/30/2010 Sustainable Business Oregon	Enewsletter	Food gets Portland on the Fast Cities List
4/25/2010 Sustainable Industries Journal	Enewsletter	Working with mission drive organizations
3/24/2010 Food Safety News	Enewsletter	FoodHub Connects Growers, Buyers Online
3/22/2010 Culinate	Enewsletter	What is FoodHub?
3/11/2010 Sustainable Business Oregon	Enewsletter	Kane honored by Fast Company as a sustainable food leader
2/5/2010 Portland Culinary Alliance	Enewsletter	FoodHub launches
2/5/2010 Oregon Business Magazine	Enewsletter	FoodHub will connect local farmers with customers
2/3/2010 Sustainable Food News	Enewsletter	Ecotrust's New Online Database Connects Food Buyers, Sellers
1/21/2010 Oregon Ag Quarterly	Quarterly	FoodHub connects the spokes of Pacific Northwest agriculture
1/1/2010 The Tagline	Quarterly	FoodHub: Where food people connect
12/1/2009 <i>The Furrow</i> : OR Rural Action	Newsletter	FoodHub: Where food people connect
11/6/2009 Portland Farmers Market	Vendor Newsletter	
11/5/2009 Slow Food Portland	Enewsletter	FoodHub: Cultivating a Local Economy
11/5/2009 COMFOOD	Enewsletter	FoodHub: Cultivating a Local Economy
10/30/2009 Edible Seattle	Enewsletter	Connect on FoodHub
10/27/2009 Seattle Chefs Collaborative	Enewsletter	Presenting FoodHub!

**ADVERTISEMENTS**

Edible Seattle	bi-monthly	Strawberry: by the flat or by the field.
Tilth Producers (Wash)	Quarterly	Strawberry: by the flat or by the field.
Oregon Tilth	Quarterly	Strawberry: by the flat or by the field.
The Apple Press (WSNA)	Quarterly	Strawberry: by the flat or by the field.
1/1 - 4/30/10 The Apple Press (WSNA)	Online	Looking for Food in All the Best Places
3/12/2010 Portland Food&Drink.com	Weekly	Meet Market
3/5/2010 Capital Press	Weekly	Looking for Food in All the Best Places
3/1/2010 Capital Press	bi-monthly	Looking for Food in All the Best Places
3/1/2010 Ag Link	1/4ly Magazine	Looking for Food in All the Best Places
3/1/2010 Main Ingredient	bi-monthly	Looking for Food in All the Best Places
3/1/2010 Edible Seattle	bi-monthly	Looking for Food in All the Best Places
3/1/2010 In Good Tilth	1/4ly Magazine	Let Them Know You are Available
2/26/2010 Edible Portland	Weekly	Let Them Know You are Available
1/1/2010 Capital Press	1/4ly Magazine	Let Them Know You are Available
1/1/2010 Tilth Producers (Wash)	bi-monthly	Let Them Know You are Available
1/1/2010 Ag Link	bi-monthly	Let Them Know You are Available
1/1/2010 Edible Seattle	bi-monthly	Looking for Food in All the Best Places
1/1/2020 In Good Tilth	1/4ly newsletter	Let Them Know You are Available
12/11/2009 The Apple Press (WSNA)	Weekly	Looking for Food in All the Best Places
12/4/2009 Capital Press	Weekly	Let Them Know You are Available
11/20/2009 Capital Press	Weekly	Let Them Know You are Available
11/13/2009 Capital Press	Weekly	Let Them Know You are Available
11/1 - 12/31/09 Capital Press	Online	Let Them Know You are Available
12/1/2009 CapitalPress.com	1/4ly Magazine	Skyscraper ad
12/1/2009 Edible Portland	Monthly	Let Them Know You are Available
11/1 - 12/31/09 Main Ingredient	Online	Let Them Know You are Available
Portland Food&Drink.com		Meet Market

**PRESENTATIONS**

9/20/2010	OR Rest & Lodging Assn	Annual Mtg	presentation	Bend, OR
6/30/2010	OSU Extension	Special Mtg	presentation	Corvallis, OR
6/14/2010	USDA Farm Service Agency Directo	Annual Conf	presentation	Portland, OR
6/9/2010	Sign Up Fair	FoodHub Hoste	presentation	Eugene, OR
5/20/2010	Sign Up Fair	FoodHub Hoste	presentation	Joseph, OR
5/10/2010	Sign Up Fair	FoodHub Hoste	presentation	Seattle, WA
4/27/2010	National Nutrition Summit International Assn Culinary	Annual Conf	presentation	Washington, DC
4/23/2010	Professionals	Annual Conf	presentation	Portland, OR
3/22/2010	Farm-To-Table Trade Mtg	Trade Expo	booth/table and presentation	Olympia, WA
3/20/2010	Spokane Farmer-Chef Connection	Trade Expo	conference discount offered	Spokane, WA
3/18/2010	Food Services of America Expo	Trade Expo	booth/table	Portland, OR
3/18/2010	French Prairie Regional Expo	Annual Conf	booth/table	Canby, OR
3/12/2010	Oregon School Nutrition Assn	Annual Conf	booth/table and presentation	Seaside, OR
3/8/2010	Farmer-Chef Connection	Annual Conf	booth/table and presentation	Clackamas, OR
3/1/2010	Farmer-Fisher-Chef Connection	Annual Conf	booth/table and presentation	Seattle, WA
2/27/2010	OSU Small Smalls Conference	Annual Conf	booth/table and presentation	Corvallis, OR
2/24/2010	Wild Seafood Exchange	Annual Conf	presentation	Seattle, WA
2/22/2010	Farm-To-Table Trade Mtg	Annual Conf	booth/table and presentation	Mount Vernon, WA
2/22/2010	Local Food Connection	Open House	presentation	Ashland, OR
2/9/2010	Open House in the Gorge	Annual Conf	presentation	Hood River, OR
2/8/2010	Local Food Connection	Luncheon	booth/table and presentation	Hermiston, OR
2/2/2010	FoodHub Launch Luncheon	Annual Conf	presentation and celebration	Portland, OR
2/1/2010	Local Food Connection	Trade Expo	booth/table and 2 presentations	Eugene, OR
12/3/2009	Whatcom Bounty Trade Expo	Annual Conf	booth/table	Bellingham, WA
11/13/2009	WA Tilth Producers Annual Conf		booth/table	Yakima, WA
11/5/2009	North Peninsula Farm to School		presentation	Blyh, WA
Week of 11/26	Sneek Peek Sessions for ngos, trade assns, farmers market managers, etc.			Mt Vernon, Seattle WA
Week of 11/19	Sneek Peek Sessions for ngos, trade assns, farmers market managers, etc.			Portland, OR
10/30/2009	Oregon School Nutrition Assn Boar Vendor Fair		presentation	Salem, OR
10/15/2010	Food Services of America		booth/table	Portland, OR

**EVENT SPONSORSHIPS**

3/8/2010	Farmer-Chef Connection	Annual Conf	Title Sponsor
11/20/2009	Oregon Agribusiness Council	Annual Dinner	Title Sponsor
11/13/2009	WA Tilth Producers Annual Conf	Annual Conf	Title Sponsor

**MASS MAILINGS & EMAILS (GENERATED by FOODHUB & PARTNERS)**

9/13/2010	Join Us at One of Several Events Q&A with Deborah Kane,	Email	Promoting Eugene, Madras, Bend
8/31/2010	FoodDay	Email	Version 2.0 is coming....
8/15/2010	FoodHub Connections	Email	Portland buying club finds meat
8/3/2010	FoodHub Connections	Email	Two Eugene restaurants find a local wholesale provider
7/14/2010	FoodHub Connections	Email	Eat Oregon First finds prime partners
6/29/2010	FoodHub Connections	Email	FoodHub is a great place for special promotions
6/16/2010	FoodHub Connections	Email	Food Buying Club Finds Strawberries
6/2/2010	FoodHub Connections	Email	Gervais Finds Lettuce
5/18/2010	FoodHub Connections	Email	Salvador Molly's Finds Peppers
5/5/2010	FoodHub Connections	Email	Little Pots and Pans Plans Ahead
4/21/2010	FoodHub Connections	Email	Portland Public Schools Finds Radishes
3/22/2010	Marketplace Madness	Email	Focus on connections happening on the site
3/8/2010	FoodHub News Digest #4	Email	Bon Appetit just joined
2/26/2010	Oregon Tilth	Email	Encouragement to join to 340 Oregon Tilth operators

2/24/2010	FoodHub News Digest #3	Email	Become an Ambassador, Radio spot in Seattle
2/10/2010	FoodHub News Digest #2	Email	Marketplace Mayhem
		Postcard,	
1/27/2010	FoodHub News Digest #1	Email	First 100 buyers and sellers free in Eugene
1/20/2010	Postcard mailing....	Email	Sent to 3500+ people
12/9/2010	It's a Meet Market!	Email	Ecotrust announces arrival of FoodHub
11/17/2010	Explore FoodHub today!	Email	Sent to Guide to Local and Seasonal Products
	Red carpet treatment for those in		
11/12/2010	Guide		Sent to Guide to Local and Seasonal Products

**PRESS RELEASES**

- 9/20/2010 **FoodHub Serves Up Its Second Course**  
*FoodHub 2.0 Debuts at Oregon Restaurant and Lodging Association Annual Meeting*
  
- 9/13/2010 **Ecotrust Hires Sales & Marketing Director**
  
- 7/6/2010 **New Seasons Market Helps Ecotrust Reel in FoodHub Members**
  
- 6/10/2010 **Area Businesses Aim to Seed a New Crop of FoodHub Members**  
*Discounts on Annual Registration Fee Now Available for NW Food Buyers & Sellers*
  
- 2/2/2010 **"Northwest Bakery ISO Local, Organic Peaches"**  
*FoodHub Rolls Out as a Matchmaker between Farmers, Food Producers, and Buyers*
  
- 1/20/2010 **USDA Undersecretary Ann Wright to Visit Oregon to Promote Agency's "Know Your Farmer, Know Your Food" Initiative**  
*Three-day visit will include tours of innovative agriculture programs and celebrate the launch of FoodHub*
  
- 11/30/2009 **Food Services of America Encourages Oregon Restaurants and Schools to Become Members of FoodHub**
  
- 11/2/2009 **New Website Aims to Transform the NW Food Economy**

For Immediate Release  
January 20, 2010



**Media Contact:**  
Amy Brown  
[amyb@seed-pr.com](mailto:amyb@seed-pr.com)  
503.341.3795

**USDA Undersecretary Ann Wright to Visit Oregon to Promote Agency's  
"Know Your Farmer, Know Your Food" Initiative**

*Three-day visit will include tours of innovative agriculture programs and celebrate the launch of  
Ecotrust's new online marketplace, FoodHub*

**PORTLAND, OR** – Northwest food and farm leaders will welcome US Department of Agriculture Deputy Undersecretary Ann Wright to Oregon to learn more about the region's innovative efforts in the food and farm arena. Ms. Wright, whose focus at USDA is on Marketing and Regulatory Programs, is especially interested in hearing more about programs that align with the USDA's *Know Your Farmer, Know Your Food* initiative and connecting with key Northwest agricultural representatives. Her three-day visit, taking place January 31-February 2, will feature site tours and dialogue with farmers, businesses and state officials who are eager to share many of the maverick approaches they have taken to strengthening the local agricultural and food economy.

Undersecretary Wright was appointed to her position by Agriculture Secretary Tom Vilsack in June 2009. Before serving in her current role, she was the senior policy advisor to Majority Leader Harry Reid on issues before the Senate Agriculture Committee. Prior to that, Undersecretary Wright worked as a policy analyst for Consumers Union on energy and trade issues and worked with farmers and non-profit organizations at the Sustainable Agriculture Coalition in Washington, D.C.

Portland-based nonprofit Ecotrust is sponsoring and organizing the Undersecretary's inaugural visit to the Pacific Northwest through its *Food & Farms* program. The mission of Ecotrust's Food & Farms program is to improve public understanding of agriculture and the challenges it faces and to increase the market share of locally grown, processed, and manufactured foods. While here, Wright will help Ecotrust and partners such as the Oregon Department of Agriculture and Washington State Department of Agriculture celebrate the official launch of FoodHub ([food-hub.org](http://food-hub.org)), a social venture business of *Ecotrust*, made possible in part by USDA Specialty Crop Block Grant funding.

FoodHub is an innovative new online directory and marketplace that connects the Pacific Northwest food community and accommodates food producers—including farmers, ranchers, fishermen and food manufacturers—and food buyers of every scale and production type. Since its "beta" launch in November 2009, FoodHub has attracted more than 200 members throughout the Pacific Northwest.

### Schedule for Undersecretary Wright's Trip to Oregon:

<b>Sunday, January 31</b>	<b>Eugene</b>
6 pm	Meet with Willamette Valley farmers, ranchers and representatives from <u>Cascade Pacific Resource Conservation &amp; Development</u> .
<b>Monday, February 1</b>	<b>Eugene, Corvallis and Portland</b>
9:00 am	Keynote speaker at 4 <sup>th</sup> annual <u>Local Food Connection</u> conference, a gathering of more than 150 farmers, agricultural advocates, educators and food buyers. Lane Community College, Eugene Undersecretary Wright to give keynote address with focus on <i>Know Your Farmer, Know Your Food</i> initiative and FoodHub's role in connecting producers and buyers.
11:30 am	Lunch at <u>Gathering Together Farm</u> in Philomath, Ore., with Josh Hinerfeld and Tom Lively of <u>Organically Grown Company</u> personnel to learn about OGC's innovative distribution program and the Lady Bug brand which supports 40+ regional farmers.
2:15 pm	Arrive at <u>Stahlbush Island Farms</u> , Corvallis, Ore.; Learn about Stahlbush's vertical integration and new biogas project during a tour of the farm and food manufacturing facilities. In addition, Wright will participate in a round table discussion with Corvallis area farmers and foresters.
6:30 pm	Dinner at <u>Navarre</u> restaurant in SE Portland with local farmers and representatives from farm organizations along with the OSU Small Farms Program.
<b>Tuesday, February 2</b>	<b>Portland</b>
10:00 am	Tour <u>New Seasons Market</u> with President Lisa Sedlar.
11:30 – 1:30 pm	More than 120 Northwest food and farming representatives will gather at Ecotrust to greet Undersecretary Wright and celebrate the launch of FoodHub.
2:00 – 3:30 pm	Directors' Conversation: Undersecretary Wright will be joined by Washington State Department of Agriculture Director Dan Newhouse and Oregon Department of Agriculture Director Katy Coba to discuss domestic and international issues of importance to the Northwest agricultural market. <u>Food Innovation Center</u> , Portland
3:30 – 5:00 pm	Tour the Food Innovation Center and sensory lab; taste Northwest products and meet NW entrepreneurs who have used the facility for research and development.
6:00 pm	Dinner at Park Kitchen with representatives of the Northwest's school food nutrition community. Guests include Michelle Ratcliffe, Oregon Department of Agriculture; Tricia Sexton Kovacs, Washington State Department of Agriculture; Kristy Obbink, Portland Public School District; Joan Ottinger, Oregon Department of Education; and select others.

### About Ecotrust's Food & Farms Program

Ecotrust's mission is to inspire fresh thinking that creates social equity, economic opportunity, and environmental well being. With regard to our Food and Farms program, we improve public understanding of agriculture and the challenges it faces and work to increase the market share of locally grown,

processed and manufactured foods. Whether by introducing a farmer to a chef or food processor to an institutional buyer, Ecotrust is a trusted “benevolent broker” that has been making connections between food buyers and sellers in the Pacific Northwest for a decade. Learn more at [ecotrust.org](http://ecotrust.org)

# # #

**For Immediate Release**  
February 2, 2010



**Media Contact:**  
Amy Brown  
[amyb@seed-pr.com](mailto:amyb@seed-pr.com)  
503.341.3795

### **“Northwest Bakery ISO Local, Organic Peaches”**

*FoodHub Rolls Out as a Matchmaker between Farmers, Food Producers, and Buyers*

**PORTLAND, OR** – This growing season, Northwest food producers and food buyers will begin utilizing FoodHub, a new online resource that simplifies the process of making connections with each other. Today, following a successful 90-day beta-testing period, FoodHub celebrated its official launch at a luncheon in Portland, Ore., that featured USDA Deputy Undersecretary Ann Wright as the keynote speaker. Wright heralded FoodHub as an innovative example of the USDA’s *Know Your Farmer, Know Your Food* initiative at work; one that embraces new technology to bolster a regional food system, expand market channels, and bridge rural and urban economies.

A social venture business of the nonprofit Ecotrust, FoodHub ([food-hub.org](http://food-hub.org)) is designed to increase food trade in the Pacific Northwest. It is the only network in of its kind that accommodates food producers and food buyers of every scale and production type in the Pacific Northwest and parts of Alaska. Customizable search features allow a buyer to hone in on the exact product specifications they are seeking. For wholesale food buyers, FoodHub makes finding local food as easy as it is for someone to search for Mr. or Ms. Right on Match.com®.

“FoodHub presents information in a way that hasn’t been available before,” said David Hoyle, owner of Creative Growers in Noti, Ore. “It’s the quickest and easiest way for caterers, chefs and grocers to find growers, learn about what they have and determine if they’re a good fit. We do business in a very personal way, but FoodHub is a conversation starter, a door opener, a meeting place.”

While in beta, 280 Northwest farmers, ranchers, fishers, food producers and wholesale food buyers became registered users of FoodHub. Northwest food producers promoted the availability of more than 560 products to the buying community; buyers expressed a need for 646 products from local sources. An analysis of user data during the month of January, 2010, shows 1,700 visitors and 14,000 page views from major cities in the Northwest, as well as San Francisco, New York and Canada.

FoodHub’s development team devoted the beta period to expanding the site’s taxonomy, creating product and ingredient categories for the Northwest dairy, beer, wine and spirits sectors, in addition to the categories for fruits, vegetables, meat, fish, herbs, grains, dry beans and nuts already in place. User feedback and an analysis of usage trends will continue to shape the structure and delivery of new features and improvements to ensure that the site is intuitive and successful for both buyers and sellers.

over

“Food miles, food safety, animal well-being and exceptional quality are important issues that guide my purchasing practices,” said Joe McGarry, an executive chef with Bon Appetit Management Company. “FoodHub allows me to use these factors to sort through the database and find the best suppliers.”

Sophisticated search capabilities allow buyers, both large and small, to instantly discover ready suppliers with a few clicks of their computer keyboard. Conversely, sellers can use FoodHub search features to identify new buyer leads and build targeted customer databases. All registered users can complete an online profile that includes a detailed description of their operation and preferred methods for doing business. FoodHub supports both direct market relationships and leverages existing distribution channels to encourage growth in regional food sales.

With an annual membership fee of \$100, FoodHub is a cost-effective business tool. In addition to its search and connect functions, FoodHub can professionalize communications and transactions between parties with its message center, preferred contacts feature, and standardized purchase orders and invoices.

#### **Creation of FoodHub**

Developed using open-source technology with private foundation, nonprofit and government resources, FoodHub is intended for broad use throughout the agricultural community. Backers expect FoodHub will strengthen rural communities and make it much easier to localize supply chains. To ensure its success, partnerships have been formed with organizations active in Northwest food buying and food selling circles, including agri-business councils, food product commissions, distributors, grocery retailers, chefs and restaurants, farm to school programs, the Washington State Department of Agriculture, and the Oregon Department of Agriculture, among many others. View the complete list of funders and collaborators at [food-hub.org/supporters](http://food-hub.org/supporters).

#### **About Ecotrust’s Food & Farms Program**

Ecotrust’s mission is to inspire fresh thinking that creates social equity, economic opportunity, and environmental well being. With regard to our Food & Farms program, we improve public understanding of agriculture and the challenges it faces and increase the market share of locally grown, processed, and manufactured foods. Whether by introducing a farmer to a chef or a food processor to an institutional buyer, Ecotrust is a trusted “benevolent broker” that has been making connections between food buyers and sellers in the Pacific Northwest for a decade. Learn more at [ecotrust.org](http://ecotrust.org).

# # #

**Editor’s note:** Contact Amy Brown [amyb@seed-pr.com](mailto:amyb@seed-pr.com) for test password and temporary demo account. Images of screen captures are also available

# FoodHub in the News



**Sustainable Business Oregon**  
March 11, 2010

## **Kane honored by Fast Company as a sustainable food leader**

**Portland, OR** – *Portland's Deborah Kane, vice president of the food and farms program with Ecotrust, was named by Fast Company magazine as one of the 10 most inspiring people in sustainable food, alongside such names as Michael Pollan, author of the Omnivore's Dilemma, Jamie Oliver, of the television program The Naked Chef, and Robert Kenner, the director of the documentary Food Inc.*

*Kane was honored in part because of her work on FoodHub, the online match-making service that connects chefs with food producers, that was launched by Ecotrust earlier this year.*

*Sustainable Business Oregon checked in with Kane to talk about the Fast Company list and to catch up on FoodHub:*

**Q: How has this honor changed your work week?**

**A:** It has made me spend a lot of time thinking about my equally deserving colleagues and peers; in some cases it's provided the perfect excuse for some fun trips down memory lane. I've been fortunate to work with hundreds of colleagues who just as easily could have been on this "top 10" list.

**Q: Which of your co-honorees would you most like to share a meal with?**

**A:** Jamie Oliver, no question. A lot of what we do at Ecotrust involves trying to change the school food landscape. Jamie once did a video in which he made, from scratch, chicken nuggets with school kids. I think he was following the ingredient list from one of the major food processing companies that supply chicken nuggets to schools. In the process, he made it painfully clear that chicken nuggets are oftentimes more bone, and skin and disgusting additives than chicken. Having seen what goes into some school chicken nuggets, every kid in the room opted for the baked chicken breast. I thought it was brilliant and I'd love to get to tell him that in person.

**Q: How are things going with FoodHub since the launch?**

**A:** It's been extremely gratifying to take FoodHub from concept to reality. We were pretty sure we were on to something while we were in the planning and development phase; but there is just no better feeling than having those suspicions confirmed now that we've launched. Our goal was to build a tool that would make it easy and efficient for regional food buyers and sellers — of all types and scales — to find each other, connect and do business. In just the five weeks since launch, restaurants are locking in contracts with local growers, fishermen are sending in product from the coast, wheat producers are finding new markets, and schools have a direct line of sight to farmers

who want to come in and teach kids where their food comes from. Pinch me; it seems to be working. And as we get into harvest season it is only going to get more dynamic.

**Q: Why was Oregon a good place to nurture FoodHub?**

A: FoodHub is for everybody that's buying or selling regional food; it is in no way limited to those already benefiting from and participating in our famously robust regional food economy. But frankly, to engage the traditional rancher in Eastern Oregon, or grass seed farmer in the Willamette Valley or the hospital food buyer who hasn't yet thought about localizing their supply chain, you need the early adopters to get things going. In Oregon, we've got those early adopters.

**Q: What was it like building a for-profit business from within Ecotrust's nonprofit walls?**

A: Fantastic. Before I came to Ecotrust I had actually told myself I'd never work for a nonprofit organization again. But I bent my own rule and joined Ecotrust four years ago because it's a unique organization where entrepreneurialism is both encouraged and expected. Ecotrust has a long and successful history of nurturing concepts in a non-profit context and then spinning the best ideas off as for-profit entities such as ShoreBank Pacific and Ecotrust Forests LLC.

**Q: What else are you working on that you're excited about?**

A: I'm always excited about *Edible Portland*, the quarterly magazine we publish. It is such a tremendous honor for us to get to tell the unique stories of the men and women in our region who put food on our tables every day. We publish with the change of the seasons and I'm always surprised by how excited I always get to be involved in each and every issue.

**URL:**

[http://www.sustainablebusinessoregon.com/articles/2010/03/kane\\_honored\\_by\\_fast\\_company\\_as\\_a\\_sustainable\\_food\\_leader.html](http://www.sustainablebusinessoregon.com/articles/2010/03/kane_honored_by_fast_company_as_a_sustainable_food_leader.html)



**BY THE EAR OR BY THE ACRE.**  
*Are you missing out? Join FoodHub today  
and start doing deals on the region's  
busiest online marketplace.*



***food-hub.org. Where regional food  
buyers and sellers connect.***

FoodHub is a project of Ecotrust  
721 NW 9th Ave, Ste. 200  
Portland, OR 97209

Whether you buy or sell fruits, vegetables, meat, seafood or specialty items, FoodHub can help you find your perfect match. You can buy or sell in large or small quantities. Direct deliveries or mainliners, FoodHub accommodates various distribution strategies. It's a great place to meet and do business over food.

**JOIN TODAY.** *Membership in this vibrant marketplace is only \$100 a year. Discounts ranging from 20-80% for farmers, ranchers, fishermen, schools, restaurants, and others were recently added and may apply. Log on to [food-hub.org](http://food-hub.org) today or call 503.467.0816. **ALREADY A MEMBER?** You can help FoodHub grow by sharing this information with a friend or colleague.*

For Immediate Release

Media Contact: Amy Brown  
[amyb@seed-pr.com](mailto:amyb@seed-pr.com), 503.341.3795

## FoodHub Serves Up its Second Course

*FoodHub 2.0 Debuts at Oregon Restaurant and Lodging Association Annual Convention*

*- Newest Version of Online Marketplace Delivers New Look, More Content, Easy Product Entry and Greater Matchmaking -*

**PORTLAND, Ore.** – September 20, 2010 – [FoodHub](#), the online directory and marketplace that connects food buyers of all types and sizes with farmers, ranchers, fishermen and food manufacturers throughout the greater Northwest, has blossomed and matured since its February 2010 debut, and is now inviting users to taste version 2.0.

This latest version of FoodHub was introduced today at the 2010 Oregon Restaurant and Lodging Association Convention in Bend, Oregon. Improvements and new developments reflect changes made as a result of user analysis and feedback gathered over the last eight months, including:



**More Products to Buy or Sell:** The site's taxonomy has more than doubled to over 2,000 products, meaning more regionally grown and produced food products are simply a click away.

**Heightened Matchmaking:** The new version expands the range of customized searches, from general product descriptions to highly specific product requests and suggests potential matches to members upon login.

**Easy-to-use Design:** An improved, more approachable homepage interface and navigation tools do a better job of orienting new members to the site, and a new welcome

[video](#) provides new members or returning users with an overview of the system's features and quick coaching on how to get started and make the most of FoodHub's matchmaking functions.

“With over 600 active users, FoodHub is fast becoming an indispensable marketing tool for food producers of all scale, and where chefs, school districts, grocers, retailers and others are turning to find regional suppliers large and small,” said Amanda Osborne, FoodHub's sales and marketing director. “The new site is more user-friendly and truly a one-stop shop for anything grown, caught or produced in the greater Northwest.”

### **Membership Discounts Now Available**

To motivate regional farmers, ranchers, fishermen and food buyers of all kinds to join FoodHub now, several diverse entities from the region's food and farming community have brought discounts, ranging from 20 to 80 percent off the annual \$100 membership fee, to the table. Go to [food-hub.org](http://food-hub.org) and visit the "Join Now" page to learn more about special discounts and promotions currently available for new members.

### **About FoodHub**

A social venture business of the nonprofit Ecotrust, FoodHub ([food-hub.org](http://food-hub.org)) makes it easy and efficient for regional food buyers and sellers to find each other, connect and do business. It is the only network of its kind that accommodates food producers and food buyers of every scale and production type across such a significant geographic range. Launched in February 2010, FoodHub is quickly becoming the leading resource for regional food trade in the greater Northwest.

### **About Ecotrust**

FoodHub is an Ecotrust project made possible by the generous support and contributions of many. Ecotrust's mission is to inspire fresh thinking that creates social equity, economic opportunity, and environmental well being. With regard to our Food & Farms program, we improve public understanding of agriculture and the challenges it faces and increase the market share of regionally grown, processed, and manufactured foods. Whether by introducing a farmer to a chef or a food processor to an institutional buyer, Ecotrust is a trusted "benevolent broker" that has been making connections between food buyers and sellers in the greater Northwest for a decade. Learn more at [ecotrust.org](http://ecotrust.org).

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### **Editors note:**

Contact Amy Brown [amyb@seed-pr.com](mailto:amyb@seed-pr.com) for guest password and temporary demo account. Images of screen captures are also available.

# FoodHub in the News



**Willamette Week**

October 13, 2010

By Deeda Schroeder

## **Grow Food, Will Travel**

*How rancher Scot Laney became Oregon's alternative food taxi service.*

For farmer and rancher Phil Greif, the thought of saving \$600 every week was far too tempting to ignore.

That's how much he'd spend in one weekend, driving his vegetables and grass-fed beef four hours west to sell at Portland farmers markets from his home near La Grande. "We'd spend two nights in a hotel, pay for gas and meals. It was \$600 just going down and back," Greif says.

So when Greif spoke to another rancher, Scot Laney, about how he could keep that money in the bank and spend his time farming instead, Greif paid attention.

Months before, Laney, a self-described "serial entrepreneur," had been selling meat from his own cattle to restaurants and specialty retailers in Portland. He realized he could easily add other Oregon farmers' items to his truck—folks who were similarly dedicated to quality and stewardship of the environment, but had struggled with the time and expense they'd put into getting their goods to the Portland market.

With Laney's thought, a company was born—Eat Oregon First.

The company has been around for about 16 months, and is filling a critical need for Oregon farmers as well as buyers wanting to purchase artisan-quality goods, says Deborah Kane, Ecotrust's vice president of food and farms and creator of the food networking site FoodHub. Laney and Greif were first introduced via FoodHub.

"Distribution is the single largest barrier to the growth of the regional food economy," Kane says. FoodHub lets buyers and sellers of all sizes post their wish lists and availability lists, but transportation is up to them to arrange. Up until recently, restaurants and chefs wanting to order local, small-operation farm products had few choices—have the farmer truck it in themselves or buy what the big-truck wholesalers like Sysco might have in their giant warehouses.

"We're like the taxi service for FoodHub," Laney says.

Most of what he sells comes from his own land, the Basque Ranch in Tygh Valley, near Pendleton, or from a small fleet of fishing boats out of Garibaldi. That might not always be the case because he's adding new items—like Greif's sun-cured Candy Sweet onions and garlic scapes—with increasing regularity. The company has eight employees, who answer phones, take orders and make deliveries, and is slowly adding on to the six farms it works with currently.

The operation is blending the line between farmer and distributor—incorporating some of the positive practices of industrial, macro-food giants like Sysco and US Foodservice, while only selling small-production Oregon items within days of harvest, Laney says.

“Not everything about corporate food is bad—just at that giant level,” he says. Laney explains that he offers farmers healthy prices for volume while competing in the Portland restaurant and retail market. So far, he's supplying around 20 chefs and specialty retail customers.

Piper Davis, the cuisine director at Grand Central Bakery in Portland, says the prices the bakery's been paying for Laney's Oregon albacore tuna are definitely competitive. Grand Central has spent years developing relationships with farmers, and when Laney approached her with high-quality fish at a reasonable price, it was hard to ignore. GCB smokes it and puts it into a sandwich. “He's filling the niche—he sees the hole that's there in transportation,” says Davis.

Laney hopes he can make Oregon products more affordable, though he knows they will never be as cheap as industrially produced food. “What we want to do is lower the cost of local foods—it's economically exclusive right now,” he says. Eat Oregon First does it by buying local goods in volume and parceling them out, which brings the wholesale cost down for customers like Davis. He's careful, though, to visit new suppliers before putting their goods on his truck, making sure there's no “greenwashing” (exaggerating or deceptively selling something as “green” or “good for the environment”) going on. “Now chefs are asking us, ‘What else can you find?’ That's because they trust our eye,” he says.

That trust translates to demand: When Laney added eggs to the list of products available, he was overwhelmed by the response from customers. “There were orders for about 100 dozen more than we actually had,” he says.

Kane says she's thrilled that Laney's watched what's developed on FoodHub and is filling an obvious need, but isn't sure what he's doing is particularly newsworthy. Really, he's another guy, in a truck, pulling up to the back door of a kitchen.

“He doesn't fit the mainline description, only because he's new. But he's a distributor. That's what he does,” she says.

But Peter de Garmo, owner of PastaWorks, sees it another way. The four PastaWorks locations receive deliveries from four to six individual meat producers and probably 12 to 16 separate produce farmers every week and have begun to carry several Eat Oregon First items like Basque Ranch beef, honey, salmon and flour.

“What I see him doing is creating a parallel food distribution system. It won’t overturn the industrial system, but it’s an alternative,” de Garmo says. Laney is strengthening the informal system that connects products directly to stores, he adds.

“[Laney] brought some of the most amazing salmon I’ve ever seen, and at fair prices—it literally flies off the shelf in a matter of a weekend,” de Garmo says. He’s hopeful Laney’s unique business will continue to thrive and possibly divert dollars away from big-scale food producers and distributors.

“He’s really focusing on the regional food network,” de Garmo says. “It’s very daring in some ways—helping us break our dependence on national distribution chains.”

**MORE:** Eat Oregon First products can be found at Tabla Bistro, Nostrana and Lincoln restaurants, all PastaWorks locations and all Grand Central Bakery locations, among others. Visit [eatoregonfirst.com](http://eatoregonfirst.com) or call 597-7030 for information.

URL: <http://wweek.com/editorial/3649/14617/>

## Culinary connection

### FoodHub is an online resource linking area food buyers with the region's farmers and food processors

By [Diane Dietz](#)

The Register-Guard

Appeared in print: **Sunday**, Oct 17, 2010

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The pledge at Adam's Sustainable Table is to serve wholesome, unadulterated organic and local foods.

This spring, under chef Melissa Williams wanted Oregon cranberries to sprinkle on salads. She knew they existed, grown in bogs around Coos Bay. "Somebody must be drying them," she remembers thinking.

Ordinarily, finding a new local food would mean a multi-hour quest, involving many phone calls.

But this time she tapped into the newly created regional FoodHub internet site — and instantly posted her desire for cranberries before an audience of hundreds of farmers, food processors and other suppliers.

That's how she learned that Hummingbird Wholesale — only 10 blocks from the restaurant — not only stocked the cranberries, but also dried them locally and finished them with a touch of Oregon blackberry honey.

“It's hysterical to me how the connections can be happening a mile apart or 100 miles apart,” said Deborah Kane, a project director at the Portland-based Ecotrust, which founded FoodHub.

FoodHub is a virtual marketplace launched in February and intended to re-create a regional economy for meat, vegetables and other foodstuffs by linking wholesale buyers and sellers in Oregon, Washington, Alaska, Montana, Idaho and California.

The project sits at the apex of at least a half dozen social movements:

The FoodHub gets more local foods into the locavores' grocery stores. It serves the farm-to-school movement by helping food service directors find local foods in quantities they need. It can mean that food travels fewer miles between farm and table, reducing green house gases.

The FoodHub also allows for smaller-scale food production, which some regard as safer than larger multi-state operations. And chefs are insisting on the delicate colors and flavors of vegetable varieties that no longer have to be bred for sturdiness to withstand long-haul shipping.

Offered fresh this week on FoodHub: late season green beans, chestnuts, winter squash, Jonagold apples, apple-finished pork, and gourmet lamb to be butchered in November.

“It's getting pretty exciting to grow a lot of food in Oregon, sell it in Oregon and Washington — and people no longer have to buy from China,” said James Henderson, farm liaison with Hummingbird Wholesale. “Farmers are taking better care of the land, and we're making a living, so it's all good, good, good.”

The tighter the farmer-buyer-consumer cycle, the greater the potential for profit for the region.

The Willamette Farm and Food Coalition estimates that Lane County residents spend \$1 billion on food annually. Today, only 3 percent of that stays with local farmers.

“Every connection that gets made on the FoodHub,” Kane said, “is a sale that didn't leave the region.”

The FoodHub was created with grants from federal, state and local government — including from the Eugene Water & Electric Board, which was an early supporter.

Businesses pay \$100 a year to use the site, although many have been offered scholarships to jump start the system. So far, more than 620 buyers and sellers have signed up.

Kane expects the FoodHub will be self-supporting on fees alone in about two years.

### **Forging links**

Creating an Internet link between farmers and restaurateurs was an obvious move, Kane said, because each group is dependent on the other's success. But the link didn't arise in the ether the way that other business sites do.

“The food and ag community, they're kind of late adopters,” Kane said. “Think of where they're operating physically. Farmers are in fields; chefs are in kitchen.”

“On the chef’s side, it has largely been a fax-and-phone kind of business. I would say the same is true on the farm side,” she said.

The FoodHub designers had to consider how much business information the farmers — who had historically been relatively private — would be willing to share on the web, Kane said.

The FoodHub offers a lot of choice, she said. “Their profile is theirs to manage. They’re sharing as much or as little as they feel comfortable with,” she said.

Linda Davies, a manager at Winter Green Farm at Noti, said the FoodHub is pretty comfortable to use.

“If I send a message out — whoever responds to me, it’s not public. If five farmers respond to me, the other farmers don’t know who has responded to me. It’s all like regular, closed e-mail. It’s all individual. You have to make personal contacts and then do your business.”

## **The buyers**

Buyers on FoodHub so far include 35 bakeries, 46 caterers, 19 colleges or universities, 42 food service contractors, 48 grocery stores, 14 hospitals or other health facilities, 92 restaurants and 73 public schools — from Burgerville to Eugene School District to the Oregon State Prison.

“You have all these food service directors in the state of Oregon who really didn’t know where to begin,” Kane said. “FoodHub has given them a place to start.

“They can come into the site and immediately type in arugula or tomato or carrots — or whatever it is they’re looking for — and get a really nice list of qualified producers that might be in their area.”

The FoodHub database lists 2,000 products, including all the standard vegetables and meats, plus venison, beers and spices.

In July, chef Williams at Adam’s Sustainable Table used the FoodHub to locate enough rocket greens for 350 plates when catering the International Pinot Noir conference in McMinnville.

This week the restaurant has posted a call for goat butter.

Banquet chef Tim Hill at the Lane Community College conference center joined FoodHub a week ago and said he hopes to buy a lot of local foods.

“Sustainability is a key point of our business. We would really like to do anything we can do to help the local economy and to cut down on carbon emissions. It’s a better product, too, almost always.”

Tim Stevens, co-owner of Vanilla Jill’s frozen yogurt at the Coburg Station, said he sources everything he can locally. His FoodHub profile said he buys a dozen items including eggs, almonds, hardy kiwi and rhubarb.

Chef Eric Bertrand at Ratatouille bistro at Crescent Village in North Eugene said the FoodHub is a great concept,

“I made connections with some people I really enjoy. And I found some new suppliers for me,” he said. “I go at least once a week to check on what’s going on there.”

## **The sellers**

The FoodHub's sellers include 11 bakeries, five breweries, 15 dairies, 241 farmers, 23 fishermen, 14 wineries and 98 food processors or manufacturers.

They seek links with specific buyers, or — when they have an oversupply of a certain crop — they post their produce on the FoodHub's marketplace, for instance: "I've got 500 pounds of late season heirlooms. Call with your best offer."

Some of the sales have been mind blowing for long-time farmers, Kane said. This week, for example, the Woodburn School District sought 700 pounds of carrots.

"We keep hearing story after story from farmers who never imagined in a million years that they would be selling to schools," Kane said. "That was a market that went away a long time ago as the nation commodified the products that were being sent to schools."

Farmer David Hoyle of Creative Growers in Noti already had buyers for most of his crop of heirloom vegetables this year, but he signed up and created a profile for his company on FoodHub.

"We sat back fisherman-style," he said. "We were asking 'Who was out there that we weren't working with, who was flying under our radar and who would see our profile (and) take a bite.'"

The listing brought him three new accounts.

Future business opportunities will be made plain when the FoodHub aggregates all the supplies and all the demands at the site's first-year anniversary. Already, Kane can see unfulfilled demand for all things poultry.

"Eggs. Absolutely. Free range eggs. Farm fresh eggs. People can't get enough chickens. They can't get enough eggs," she said.

# FoodHub in the News



**Eugene Register-Guard**

November 1, 2010

By Vicki Walker

## **GUEST VIEWPOINT:**

### **Rural communities benefiting from local food movement**

**Eugene, Oregon** – I was glad to see the Oct. 17 Register-Guard article about the FoodHub website, which connects local producers and food processors with buyers in the region. The good work being done by EcoTrust, the nonprofit group that developed FoodHub, is one of many exciting efforts under way to increase opportunities for buying local food and keeping the revenues right here in Oregon.

When it comes to local food, this is a time of great opportunity. It is one of the fastest-growing segments of agriculture, and we expect consumer demand for locally grown food in the United States to increase from \$4 billion in 2002 to \$7 billion by 2012. In addition, we've seen 100 percent growth in direct-to-consumer food marketing sales in the last decade.

During the past few years, the U.S. Department of Agriculture has been working quietly behind the scenes to help producers — including specialty crop growers, small farmers and others — to develop and gain access to these profitable markets. In fact, Rural Development, the USDA agency for which I serve as state director, provided grant funding in 2007 and 2009 to support development of the FoodHub website. And just this year, we awarded Ecotrust another \$249,340 to further the reach of this valuable resource across the Northwest. That was one of only four regionally focused grants selected nationwide under the Rural Business Opportunity Grant Program in to 2010 fiscal year.

Also on the food front, USDA Rural Development this year awarded \$1.66 million in value-added producer grants to 10 Oregon producers. Of the funds obligated in states across the nation, Oregon ranked fourth in the number of awards and third in dollars awarded. That funding is helping Oregon growers generate new products, expand market opportunities and increase their income.

Through yet another funding tool, the Rural Business Enterprise Grant Program, we provided small grants to nonprofit groups and communities to support business development in a variety of sectors. The local foods projects we supported include:

The Oregon State University Food Innovation Center's feasibility study of cold-pressed edible oils in the Willamette Valley.

The Umpqua Community Development Corporation's business training for food and land-based entrepreneurs.

Wy'East Resource Conservation and Development's community supported agriculture pilot project for local beef.

The Affiliated Tribes of Northwest Indians “salmon people” fish marketing project.

A project with Cascade Pacific Resource Conservation and Development to expand local agri-tourism.

The Willamette Farm and Food Coalition’s evaluation of prospects for a local flour mill.

In addition, grant funding from the Recovery and Reinvestment Act of 2009 was directed to both the small farmer incubator project of the Rogue Initiative for a Vital Economy, as well as the Southern Oregon Wine Institute developed by Umpqua Community College.

These and the other projects all are cultivating new business opportunities in the farm and food area. Moreover, they leverage the funding and expertise of a number of terrific partner organizations that are working to help let the Oregon economy grow as well.

These joint investments are money well spent. They have the potential to reap increasing benefits for the state’s agricultural economy in the years to come.

Our support for local foods is just one way we are working to turn rural areas into employment zones and centers for innovation. With more than \$21 billion in Recovery Act funding nationwide and nearly \$422 million in Oregon, USDA Rural Development has made unparalleled investments in economic development, as well as critical infrastructure, in rural America.

In fact, estimates show that Recovery Act funding will have created 300,000 jobs nationwide, with nearly 6,000 of those jobs in Oregon. (More information can be found at [www .rurdev.usda.gov](http://www.rurdev.usda.gov).)

In addition to our significant share of the Recovery Act, USDA Rural Development also directed nearly \$500 million in annually allocated funds to infrastructure, community facilities, affordable housing and economic development projects in Oregon’s rural areas and small communities in fiscal year 2010. These efforts are putting Oregonians back to work while making the investments that improve quality of life, promote growth and attract business to rural areas.

As a nearly lifelong resident of small-town Oregon, I have witnessed the decline of once-thriving communities that now struggle to create and retain jobs. In my work, however, I now have the honor of administering programs that support economic development in these areas, and I can attest to the fact that these federal investments provide a critical boost where it is so needed.

While government does not have all the answers, nor should it, we can help provide infrastructure and promote a positive economic climate to help build a brighter future. With policies and programs such as these, USDA Rural Development and the Obama administration are working hard to help Oregon’s rural communities and small towns remain one of the best places in the country to live, work and raise a family.

*Vicki Walker of Eugene, a former state senator, is state director of rural development for the U.S. Department of Agriculture.*

URL: <http://www.registerguard.com/csp/cms/sites/web/news/sevendays/25454453-35/rural-development-oregon-local-business.csp>

# FoodHub in the News



## Capital Press

November 25, 2010

By Mitch Lies

### Champ of Rural Oregon

*Vicki Walker's job is to stand up for the state's little guy*

**Salem, Oregon** – Four months into serving on the Oregon Parole Board, former state Sen. Vicki Walker received a call from the Obama administration asking her to become state director of USDA's Rural Development.

Thirty minutes later, Walker was on the phone with Gov. Ted Kulongoski.

"I called the governor and said, 'I'm sorry, the president trumps the governor,'" she said.

"I think what (the Obama administration) was looking for was someone who understood rural communities and someone who knew how to fight really hard to get what we need out of these (Rural Development) programs," Walker said.

"And I think my legislative career speaks for itself," Walker said. "I never took no for an answer."

Now, one year into the job, Walker is seen as a driving force behind improving conditions in rural Oregon.

"She is really an advocate for the little guy," said Peter Hainley, executive director of Community and Shelter Assistance Corp. of Oregon. "This year was the first year in 12 years we've had two farmworker housing projects funded through Rural Development in the same year."

"She moved barriers," said Cyndi Cook of Housing Works, a Central Oregon housing organization that worked with Walker on securing funding for a farmworker housing project in Madras.

At first blush, Walker, a Eugene Democrat, was an unlikely choice to lead Oregon's USDA Rural Development.

But Walker, who graduated from high school in the small coastal town of Reedsport, has small-town roots. And her political and business connections make her a natural choice.

"I love small-town Oregon," Walker said.

A former court reporter, Walker in her first year used her business connections to help investors secure a loan to start a dialysis clinic in Coos Bay.

"I knew the CEO of Summit Bank (in Eugene) and we were able to provide a business guarantee loan so people didn't have to drive all the way (from the south Oregon coast) to Eugene to get to a dialysis clinic," she said.

USDA's multibillion dollar Rural Development agency is all about helping improve conditions in rural America.

Loans and grants provided by the agency are designed to improve housing, infrastructure and help rural businesses develop and thrive.

“There are lots of people out there with inadequate housing that need their plumbing fixed, their roof fixed. They’ve got buckets because it leaks. They can’t get hooked up to the sewer because they don’t have the money.

“And our programs provide grants and loans to those folks,” Walker said.

USDA annually allocates a dedicated amount of Rural Development funds to each state. Other funds are distributed on a competitive basis.

A state measures its success by how many loans and grants its gets out the door.

“For me, it is more than that,” Walker said. “It’s how many jobs you’ve created and how many jobs you’ve saved.”

Once a state depletes its allocated resources, it can apply for additional funds out of a pool built from states that didn’t deplete their allotment.

“I always want to be asking for more (at the end of the year),” she said.

States also measure success in how they fare in national grant competitions.

Walker worked with Rural Development Deputy Undersecretary Victor Vasquez to help Oregon’s Food Hub receive one of five national rural business opportunity grants this year. Vasquez, a Hermiston, Ore., native, once worked in former Oregon Gov. Barbara Roberts’ administration.

“We took Victor Vasquez out to see a demonstration of Food Hub, and he saw the potential,” she said.

Rural Development’s total program assistance in Oregon in 2010 topped \$613 million, well above the previous high of \$547 million obligated in 2009.

“We’re all pretty tired around here,” said Jeff Deiss, business program director for Oregon’s USDA Rural Development. “She’s keeping us, working really hard.”

“We’ve been fortunate to have a string of excellent state directors who have been widely respected in Rural Development,” Deiss said, “and Vicki has continued that tradition.”

As a court reporter who worked bankruptcy cases for many years, Walker said she has seen her share of hardship. Now, in a position where she can help people, she is embracing her role.

“What was special for me about coming into this job is we can create jobs, we can save jobs, we can hopefully keep people out of bankruptcy court and foreclosure,” she said.

“I’ve seen that side,” she said.

URL: [http://www.eastoregonian.com/news/article\\_0f35e842-f870-11df-936e-001cc4c002e0.html](http://www.eastoregonian.com/news/article_0f35e842-f870-11df-936e-001cc4c002e0.html)



**For Immediate Release**

Contact: Amy Brown, 503.341.3795

**Learn How to Build Wholesale Food Sales and Source Local Food Products**

*Free FoodHub Workshops coming to Madras and Bend on Oct. 26-27*

**PORTLAND, Ore.** - *October 14, 2010* – Demand for healthy, local or regionally produced food is at an all time high. Yet every year, Oregon ranchers, farmers and specialty food manufacturers in rural communities continue to go out of business, having not found a viable method for accessing and profiting from this robust interest in their products. [FoodHub](#), a new online directory and marketplace, addresses that dilemma head on by making it easy and efficient for regional food buyers and sellers to find each other, connect and do business.

Come learn about FoodHub during two **free public workshops** being offered to wholesale food buyers and food producers in Central Oregon this month. For questions or to reserve a seat, email [meet@foodhub.org](mailto:meet@foodhub.org).

**Using FoodHub to Build Your Wholesale Food Business**

2 p.m. to 4 p.m., Tuesday, October 26, at the Madras Aquatic Center, 1195 SE Kemper Way. Learn how FoodHub can open doors to new wholesale accounts.

**Using FoodHub to Buy Local**

2 p.m. to 4 p.m., Wednesday, October 27, at St. Charles Medical Center, 2500 NE Neff Rd. Learn how FoodHub can help you find local food producers quickly and easily so that you can showcase local products on the menu.

FoodHub, a social venture business of the Portland-based nonprofit [Ecotrust](#), is designed to increase food trade in the Pacific Northwest by connecting food producers and food buyers online. It is the only network of its kind that accommodates food producers – including farmers, ranchers, fishermen and food manufacturers – and food buyers of every scale and production type across such a significant geographic range. FoodHub launched in February 2010 and already has nearly 700 members throughout the Pacific Northwest.

**Take the guess work and leg work out of finding buyers and sellers**

FoodHub immediately provides benefits to both food sellers and buyers. For farmers, ranchers and food producers FoodHub offers an easy way to let buyers know what products are available and how to make contact to complete a sale. For wholesale food buyers—including local restaurants, public schools, grocery stores, caterers, universities and hospitals—FoodHub provides a robust database of food products that are available. Customizable search features allow a buyer to hone in on the exact product specifications they are seeking.

**About Ecotrust**

FoodHub is an Ecotrust project made possible by the generous support and contributions of many. Ecotrust's mission is to inspire fresh thinking that creates social equity, economic opportunity, and environmental well being. With regard to our Food & Farms program, we improve public understanding of agriculture and the challenges it faces and increase the market share of regionally grown, processed, and manufactured foods. Whether by introducing a farmer to a chef or a food processor to an institutional buyer, Ecotrust is a trusted "benevolent broker" that has been making connections between food buyers and sellers in the greater Northwest for a decade. Learn more at [ecotrust.org](http://ecotrust.org).

## #

**S16 Improving Food Safety, Traceability and Productivity of Northwest Specialty Crops Food Processors Using Radio Frequency Identification Technology with the Northwest Food Processors Association and the Northwest Food Processors Education Research Institute (ERI)**

*Attachment 1: Technical report*

DATE: October 12, 2012

YEAR GRANTED: FY2009

GRANT #: ODA-2570-GR

TO: Katie Pearmine, Oregon Department of Agriculture

FROM: NWFPA

SUBJ: **Technical Report**

**PROJECT TITLE:**

Improving Food Safety, Traceability, And Productivity Of Northwest Specialty Food Processors Using Radio Frequency Identification (RFID) Technology

**PROJECT SUMMARY**

The Centers for Disease Control estimate that food-borne pathogens cause 325,000 U.S. hospitalizations and 5,000 deaths each year. High-profile recent events, such as the peanut-related salmonellosis outbreak that sickened more than 22,000 and killed nine, have put food safety squarely in the national spotlight.

Alarming, a disproportionate percentage of food-borne illness outbreaks are linked to specialty crops. Many specialty crop growers and processors are relatively small in scale, with less-standardized production systems. Many specialty crop growers and processors are located in isolated rural areas. Finally, the diverse nature of specialty crop production does not lend itself to standardized food traceability systems.

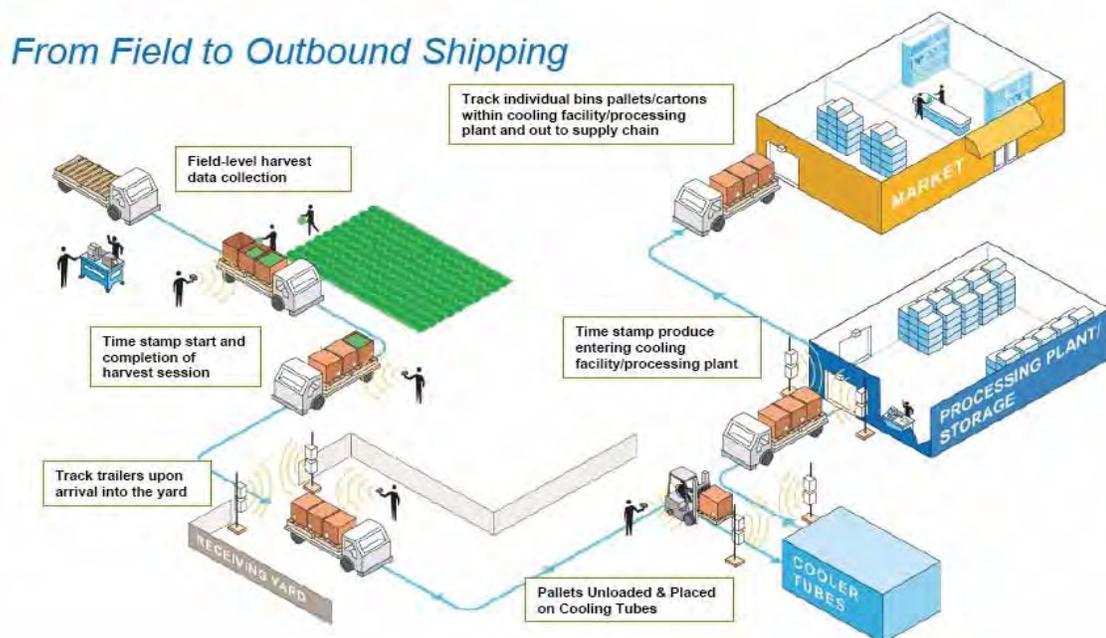
Current traceability systems in food and agricultural industries still operate under the guidance of the 1930 Perishable Agricultural Commodities Act (PACA), which focused on paper trail recordkeeping. The system is labor intensive, vulnerable to errors, slow and unreliable. Although many companies have adopted automated data capture via barcodes, the lack of standardization and significant amount of labor required for scanning still limits the effectiveness of external traceability (whole supply chain traceability) among trading partners.

This proposed pilot project is part of an aggressive cluster initiative, launched by Northwest Food Processing Association (NWFPA) in 2003 to revitalize the food Manufacturing industry in Oregon, Washington and Idaho. Cluster strategies include: 1) Increase the capacity of the Northwest's innovation infrastructure, 2) form strategic alliances and 3) increase the industry's operational productivity.

In January 2009, NWFPA co-sponsored, with Oregon State University and Oregon Department of Agriculture, a two-day **Radio Frequency Identification (RFID) Workshop**. NWFPA, its Non-Profit subsidiary Northwest Food Processors Education and Research Institute (ERI) and OSU are also participating in a regional task force to develop a west coast RFID-enabled food safety and traceability system -- a multi-state collaboration between three universities, specialty crops industries, and state governments in Oregon, Washington, and California. A planning grant has been

submitted to the USDA Specialty Crops Research Initiative (SCRI); funding is pending. If funded, the *Improving Food Safety, Traceability and Productivity of Northwest Specialty Crops Food Processors Using Radio Frequency Identification (RFID) Technology* pilot project will generate valuable preliminary information and data as well as experience for the 2010 full proposal to USDA.

An RFID enabled traceability system, schematically shown in Figure 1, would automate traceability and minimize human errors, consequently, providing more effective tracking and tracing. The typical RFID system consists of a transponder or tag, an antenna, an encoder (writer/reader), and a data management system (middleware and software). An Electrical Product Code (EPC) or digital ID number is first encoded onto the tag and stored on the tag's memory. It is then read by the reader and sent to a data management system.



**Figure 1:** An RFID-enabled traceability system

RFID codes are read automatically, at a distance of 10 meters or more, streamlining or even automating ordering, shipping, receiving, and inventory management, reducing labor cost and improving productivity.

## PROJECT APPROACH

- A. Briefly summarize activities performed and tasks performed during the grant period. Whenever possible, describe the work accomplished in both quantitative and qualitative terms. Include the significant results, accomplishments, conclusions and recommendations. Include favorable or unusual developments.

This project was awarded to NWFPA on October 1<sup>st</sup>, 2009 and was originally planned as a two year project from October 1, 2009 to September 30, 2011. It was later approved with one year extension and to be complete by September 30, 2012 due to actual delay caused by late withdraw of one food processing participant from Oregon. The project was approved initially for a total budget of \$235,000 with \$100,000 USDA grant matched with \$125,000 in-kind and \$10,000 cash by NWFPA and its collaborators.

This project was designed and implemented through two industrial pilot projects through the collaboration among the Northwest Food Processors Education & Research Institute Oregon State University’s Food Innovation Center, and industrial solution providers. It was to field test two RFID traceability systems at specialty crop processing facilities in Washington and Oregon. The first system was focus on the traceability system for improved production efficiency, tracking the location of product lots, through time, from farm field to processing plant. A second system was focused on development of an internal electronic traceability system for improving productivity and product recall for food safety through internal tracking of food ingredients in receiving, shipping and inventory.

Specifically, this project was planned to complete the following three activities 1) identify the hardware and software components of the effective RFID traceability system, 2) install needed pilot RFID system in two representative food processing plants, and 3) assess the real-world efficacy of installed RFID traceability systems in terms of production efficiency and food safety recall effectiveness.

During the past three years from October 1, 2009 to September 30, 2012, we have completed the two pilot projects, one in Washington State, and one in Oregon State with modified activities to meet the actual demands of the two participating food processing manufacturers. The two specialty crop food processing pants were selected from the member processors of NWFPA. To encourage active participation from food processing plants, NWFPA made it clear that no specific names of the participating manufacturers would be disclosed in the research report or public presentation without authorized permission from the manufacturers. We, therefore, refer to the first food processing plant in Oregon as Plant A, and the second food processing plant in Washington as Plant B in the following part of the report. In the section below, major project activities and their time line are summarized and listed in Table 1 (Please refer to quarterly reports for the detailed project activities corresponding to each reporting quarter submitted previously), followed by the description of the specific project approaches for the two pilot projects in Washington and Oregon.

a) Summary of Major Project Activities

<i>Timeline</i>	<i>Project Activity</i>	<i>Who</i>
Y1Q1: October 1 – Dec. 31, 2009	a) Project planning through partner meeting; b) Develop project time line; c) Planned educational traceability workshop through 2012 NWFPA Expo;	NWFPA/OSU /INSYNC, INC

	<p>d) Planned to attend 2010 RFID Journal Live International Conference;</p> <p>e) Developed the list of specialty crop pilot plant processor Candidates in Oregon and Washington for identifying two Food processors participants for the two pilot;</p> <p>f) Conducted a tour of Oregon processing plant as possible Pilot plant candidate in Oregon; g) identified four plant Candidates.</p>	
<p>Y1Q2: January 1 – March 30, 2010</p>	<p>a) Visited second pilot plant candidate in Oregon</p> <p>b) Conducted the educational Traceability Workshop on January 20<sup>th</sup>, 2010 at NWFPA EXPO at Portland, OR. 40 people from food processing industry participated the workshop.</p> <p>c) Select and notified the pilot plant in Oregon as Plant A</p> <p>d) Conducted project assessment through second plant visit</p> <p>e) Established preliminary product line for implementing RFID enabled traceability system</p> <p>f) Updated and extended the RFID pilot project invitation list and continue pursue prospects for Washington pilot Plant B.</p> <p>g) Prepare to share about the RFID traceability project at the 2012 RFID Journal Live International Conference in April, 2010 at Orlando, Florida.</p>	<p><i>NWFPA/OSU /INSYNC, INC</i></p>
<p>Y1Q3: April 1<sup>st</sup> – June 30, 2010</p>	<p>a) Continues working with Oregon Plant A to future development of information for needed implementation. However, the work has been delayed due to Plant A internal ERP information system upgrade and training.</p> <p>b) Continued looking for Washington pilot plant candidates</p> <p>c) Conducted knowledge transfer to food industry and RFID technology professionals through RFID Journal Live Conference at Orlando, Florida on April 12, 2010.</p>	<p><i>NWFPA/OSU /INSYNC, INC</i></p>
<p>Y1Q4: July 1<sup>st</sup> – Sept 30, 2010</p>	<p>a) Identified the second food processing pilot plant B in Toppenish, Washington and visited the plant</p> <p>b) Identified possible application areas for RFID</p>	<p><i>NWFPA/OSU /INSYNC, INC</i></p>

	<p>enabled traceability</p> <p>c) Visited the Plant B in Washington second time and determined the objectives and scope of work for the second pilot project</p> <p>d) Acquired and collected field and plant operation information and data sheets for developing the RFID traceability system.</p> <p>e) Visited the Oregon pilot Plant A second time and identified one possible application area: cold storage and inventory</p>	
Y2Q1: October 1 <sup>st</sup> - Dec. 31, 2010	<p>a) Oregon Plant A withdrawer as the participant due to their internal change of business operation</p> <p>b) Identified and visited the second Oregon pilot plant candidate</p>	<i>NWFPA/OSU</i>
Y2Q2: January 1 <sup>st</sup> – March 30, 2011	<p>a) Conducted traceability workshop at 2011 NWFPA Expo. On January 18, 2011 at Portland, Oregon. 44 food processors participated in the workshop and each updated with the pilot project and new traceability technologies and solutions</p> <p>b) Collected needed production information and filed operation data from Washington Plant B</p> <p>c) Developed technical specifications for implementing RFID enabled traceability system for Washington Plant B</p> <p>d) Developed, configured, and lab tested the software solutions for tracking shipping tractor and trailers from harvesting fields to processing plant</p> <p>e) Requested one year no-cost extension due to unexpected withdraw of Oregon Plant A participant from the project and additional time for setting up the second Oregon pilot plant participant</p>	<i>NWFPA/OSU /INSYNC, INC</i>
Y2Q3: April 1 <sup>st</sup> – June 30, 2011	<p>a) Acquisition of RFID hardware: including tags, readers, antennas, and wireless network,</p> <p>b) Site visit and installation of hardware and software</p> <p>c) Field testing hardware and set up software and wireless network.</p> <p>d) Training of field operators in Washington Plant B for application software</p> <p>e) Site survey and develop process flow chart in terms of receiving, shipping and inventory for the second Oregon pilot Plant A.</p>	<i>NWFPA/OSU /INSYNC, INC</i>
Y2Q4: July 1 <sup>st</sup> – Sept. 30, 2011	<p>a) Field integration of RFID traceability system and Plant B existing information system</p> <p>b) Final field testing of installed RFID traceability system</p> <p>c) Conducted the first round real time traceability and</p>	<i>NWFPA/OSU /INSYNC, INC</i>

	<ul style="list-style-type: none"> <li>collecting implementation data and information</li> <li>d) Collected and evaluated the traceability data and information in terms of reliability and accuracy</li> <li>e) Modified and adjusted the system settings and user interface software to improve system performance and easy to operate.</li> <li>f) Conducted second round real time traceability and Collected the needed traceability data and information</li> <li>g) Second round evaluation of system performance and obtained the feedback from operation managers in Washington Plant B.</li> <li>h) Developed scope of work for the Oregon Plant A and identified hardware and traceability solution software</li> </ul>	
Y3Q1: October 1 <sup>st</sup> – Dec. 31, 2011	<ul style="list-style-type: none"> <li>a) Continued running the Washington Plant B tracking operation and collected more tracking data for the rest of harvesting season.</li> <li>b) Summarized and prepared project progress report for Washington pilot Plant B to be presented in 2012 NWFPP EXPO in Jan., 2012</li> <li>c) Developed and configured traceability software based on ingredient inventory system and recall procedure in Oregon Plant A</li> <li>d) Identified the application areas of receiving and shipping for RFID enabled traceability</li> </ul>	<i>NWFPA/OSU /INSYNC, INC/ Mobial Solution</i>
Y3Q2: January 1 <sup>st</sup> – March 30, 2012	<ul style="list-style-type: none"> <li>a) Presented project progress to NW food processors at 2012 NWFPA Expo in Portland, OR on January 19, 2012.</li> <li>b) Trained operation managers at Oregon Plant A for using customized traceability information system</li> <li>c) Surveyed and updated wireless network system in Oregon Plant A to facilitate better wireless data communication inside processing facility</li> <li>d) Field tested real time mock recall system</li> <li>e) Modified the traceability software to make it more user friendly based on the field testing results</li> </ul>	<i>NWFPA/OSU /Mobia Solution</i>
Y3Q3: April 1 <sup>st</sup> – June 30, 2012	<ul style="list-style-type: none"> <li>a) Conducted second round real time product mock recall at Oregon Plant A</li> <li>b) Analyzed mock recall data compared to previous mock recall system for traceability and productivity</li> </ul>	<i>NWFPA/OSU /Mobia Solution</i>
Y3 Q4: July 1 <sup>st</sup> – Sept. 30, 2012	<ul style="list-style-type: none"> <li>a) Prepare and submit the project final report</li> <li>b) Conclude two pilot projects</li> </ul>	<i>NWFPA/OSU /Mobia Solution</i>

## b) Two Pilot Projects

To demonstrate the benefits and effectiveness of RFID enabled traceability systems to food processing plants, it was proposed to implement two pilot plant projects, the first one focused on improving productivity and the second one on improving food safety recall. After careful evaluation of several pilot plant candidates in Washington and Oregon, touring of their facilities, and meeting with their operational managers during the first six months, it was decided that the Washington plant would be better suited for productivity improvement while the Oregon plant would be more beneficial for improving food safety recall. However, the first Oregon plant quit the pilot project after several months of involvement due to their own busy schedule and lack of management resource to continue the project. The second Oregon plant was then selected and officially joined the project at the end of 2010. The technical aspects of the two pilot projects are summarized as follows.

### **Washington Pilot Project**

The Washington Pant B processes fresh corn to produce shelf stable canned corn. It is a vertical structured corn production plant, which manages its own cornfield for production and harvesting operation. In harvesting season, fresh corn are harvested and transported from the field to the processing facility using trucks and trailers daily according to daily production capacity of the plant. To define, design and implement effective RFID tracking system, our research team has visited and conducted site surveys of the Washington Pilot Plant B. We also met and discussed with their plant and operational managers several times to understand what their needs and the improving areas in terms of operational productivity for traceability.

#### 1. Tractor and trailer operation

Figures 2 and 3 below show the truck and trailer operation and process flow and the layout of Washington Plant B.

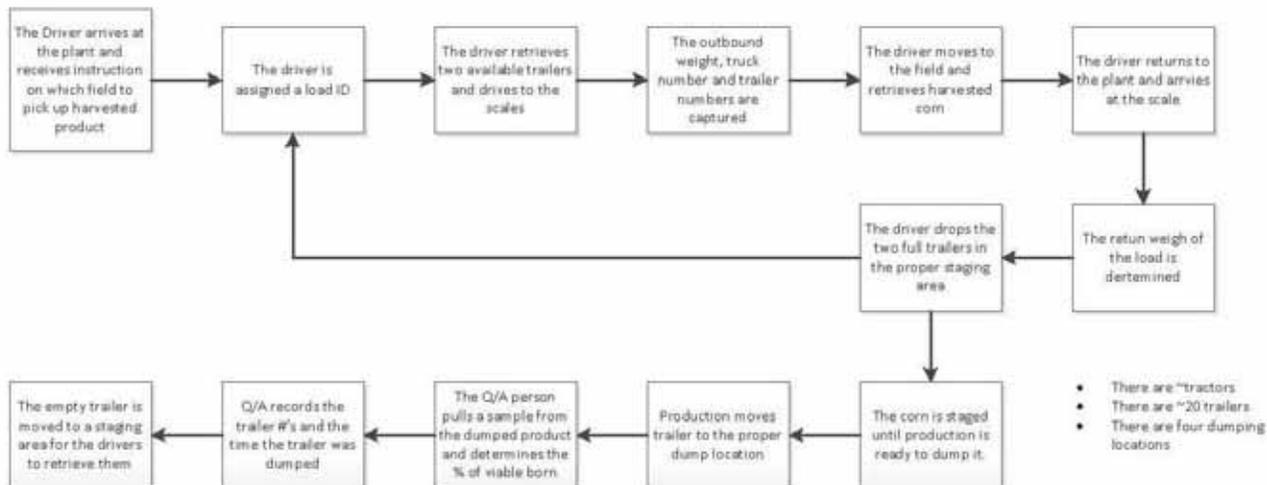
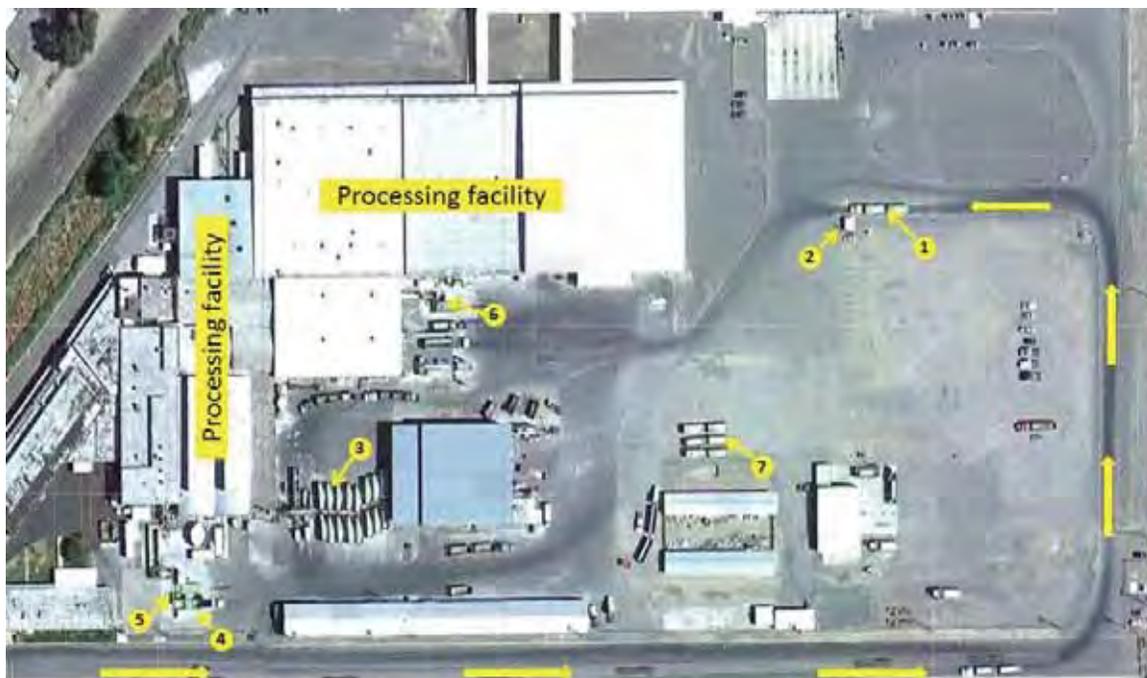


Figure 2. Tractor and trailer operation and process flow

The production operation starts at harvesting field. Corn harvesting is scheduled daily based on the crop management decisions. Each day, particular harvesting fields are selected for harvest and drivers are dispatched to the fields. The plant tracks each driver, tractor and trailers used for each load for billing, and productivity purposes via a manual data collection system. Tractors and trailers are dedicated to the plant and stored on site. The drivers use the same tractors each day, but when they arrive at the plant site, they get whichever two trailers parked and available in the plant shipping yard. The tractors and the trailers are then moved to the scale to be weighed and the dispatch manager creates a trip ticket before going out to the assigned harvesting fields. After the trailers (1) are loaded with the harvested corn in the field, the driver returns to the scale house (2) where the trailer load corn are weighed in and the trip ticket is completed. At the same time, the driver gets the next trip ticket from the dispatcher in the scale house. Then, the trailers are moved to the shipping yard and disconnected from the tractor, being parked and waiting (3) for being dumped. The driver then pick up the next two trailers (7) available and moves back to the scales where the process repeats (8).

Once the production line is ready, the trailers are moved one at a time to the dumping stations (5&6) where they are emptied into the line feed system. The empty trailers (7) are moved back into the yard where they will be picked up for next field trip.

At the dumpers (5&6), a yard operator samples the corn for quality, collects the trailer ID number and records the date and time of the trailer that was dumped.



1. Arriving truck and trailer 2. Scale house 3. Dumping trailer 4. Dumping stations A&B  
5. Dumping stations C&D 6. Trailers parked for dumping 7. Unloaded empty trailers

Figure 3. Layout of Washington Pilot Plant B

## 2. Existing data and information tracking system

The previous tracking system is mainly a paper based recording and documenting system. To start a field trip, the driver obtains a trip ticket at the scale house from the dispatcher. The ticket contains the harvesting field location and the amount of harvested corn needed to be picked up from the field. Once the driver arrives at the harvesting site, one copy of trip ticket is given to the field manager and the loading time is recorded before heading back to the processing plant. After the trailers arrive at the plant scale house, they were weighed for total gross weight and net corn weight. The weight information as well as the driver and trailers' ID numbers is then manually recorded into the plant computer information system, which is accessible from the central office. After the trailers are weighed, they are moved to one of the four dumping stations and are unloaded when they are called by two yard operators who are monitoring two dumping stations and manually recording trailer ID number and the dumping time. The recorded information is then sent to operational manager inside processing plant and used to monitor and control daily corn productivity in the processing plant. For better operational management, the plant manager needs to know how many trailer loads of corn are available in the plant shipping yard in addition to the amount of corn being unloaded to the dumping stations. The yard operators have to count them and record them regularly to update it to the plant manager. In a normal daily operation, there could be as many as several hundred trailer loads of corn being processed. Consequently, the total number of manual records created and need to be documented and managed in a given harvesting season could be a challenge.

To summarize current tracking system, it requires:

- 1) Labor required per working day:
  - a. 4 yard operators: 2 operator/shifts x two shifts/day
  - b. 2 Scale operator: 1 operator/shift x two shifts/day
  - c. 2 Operational manager: 1 manager/shift x two shifts/day
- 2) Data needs to be input and/or recorded manually
  - a. Trip ticket data
  - b. Tractor and trailers gross weight
  - c. Net load weight
  - d. Driver, tractor and trailer ID numbers and timing at:
    - i. Arriving and exit of Scale house
    - ii. Dumping stations: A,B,C, and D
- 3) Number of trailers and tractors parked in the plant shipping yard at a given hour
- 4) Number of trailer loads being dumped
- 5) Disadvantages:
  - a. Labor intensive/time consuming
  - b. Human errors
  - c. Less reliable
  - d. Slow to track

### 3. Scope of work

To improve effectiveness of the existing paper based tracking system, the project team has develop and implemented a more effective traceability system for using RFID to automate data collection including tractor/trailer pairings, product weight, trailer dumping timing, and number of trailers in the shipping yard. This data can then be used to streamline internal business process, reduce labor associated with harvest logistics and improve traceability of raw materials.

### 4. RFID tracking system

#### 1) System design requirements

To define, design and implement effective RFID tracking system, our research team has conducted site surveys of the Washington Pilot Plant B and defined the design requirements for the tracking application software for our industrial RFID solution provider, INSYNC, Inc.

#### **Requirement #1: Track tractor-trailer combination and associate it to a Load ID**

Each tractor and trailer will have RFID tags that are associated with it. The information of which trailers are hooked up to which tractor is captured at the weigh scale station when the tractor-trailer is on the weigh scale

In the outbound situation, each tractor-trailer combination is assigned a Load ID. The tare weight and timestamp are recorded at the weigh station through an application UI.

In the inbound situation, the gross weight and timestamp are recorded at the weigh station through an application UI. The net weight of the load is then calculated.

#### **Requirement #2: Data Entry Screen to Associate RFID tags to Tractors and Trailers**

An array of RFID antennas will be installed only on one side of the weigh scale. The strategy is to tag each tractor or trailer with two identical RFID tags (one on each side) so that the vehicle can be identified regardless of the direction it is pointing.

#### Screen input:

- Type: Tractor or Trailer (select from dropdown)
- Vehicle or Truck ID
- Tag ID

#### **Requirement #3: Data Capture Screen at Weigh Station**

##### Screen: Outbound Section:

Display shows (after the RFID tags are read at weigh scale):

- Tractor ID (or alias)
- List of trailer ID (or alias)

#### Data Input:

- Load ID (for the Proof-of-Concept, there is no backend integration and Load ID is

- not pre-populated in the application)
- Field location (where to pick up produce)
- Tare Weight (manually entered based on scale reading)

Screen: Inbound Section:

Display shows (after the RFID tags are read at weigh scale):

- Load ID (captured during outbound)
- Tractor ID (or alias)
- List of: trailer ID (or alias)
- Tare Weight (captured during outbound)
- Outbound timestamp

Data Input:

- Gross Weight

**Requirement #4: Reports**

Outbound and Inbound Load ID Report

- Select by date-time range (default is current day)
- Display shows:
  - Load ID
  - Tractor ID
  - Trailer IDs
  - Outbound and inbound timestamp
  - Field location
  - Net weight
  - Status: Outbound/Received

Dump Report

- Select by date-time range (default is current day)
- Display shows:
  - Load ID
  - Trailer ID
  - Dumper ID
  - Dump timestamp
  - Net weight

2). RFID tracking system

Overview

The designed and implemented RFID tractor and trailer tracking system in Washington Pilot Plant B can be easily illustrated in Figures 4 and 5 below. The tractor and trailer operation in the plant shipping yard consists of two routes (Fig.4): Arriving (yellow route) and Leaving (gray route).

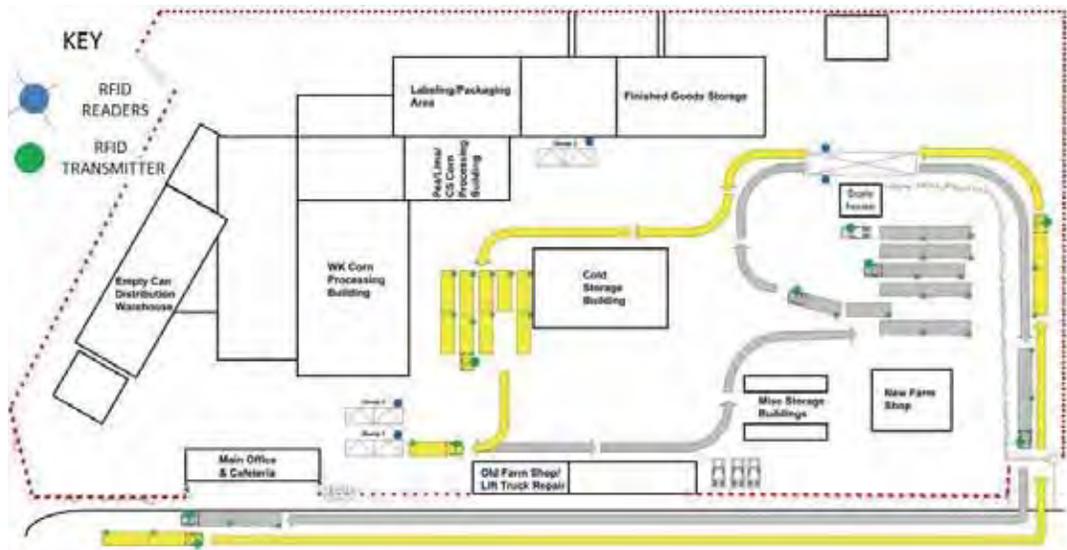


Figure 4. RFID tractor and trailer tracking system

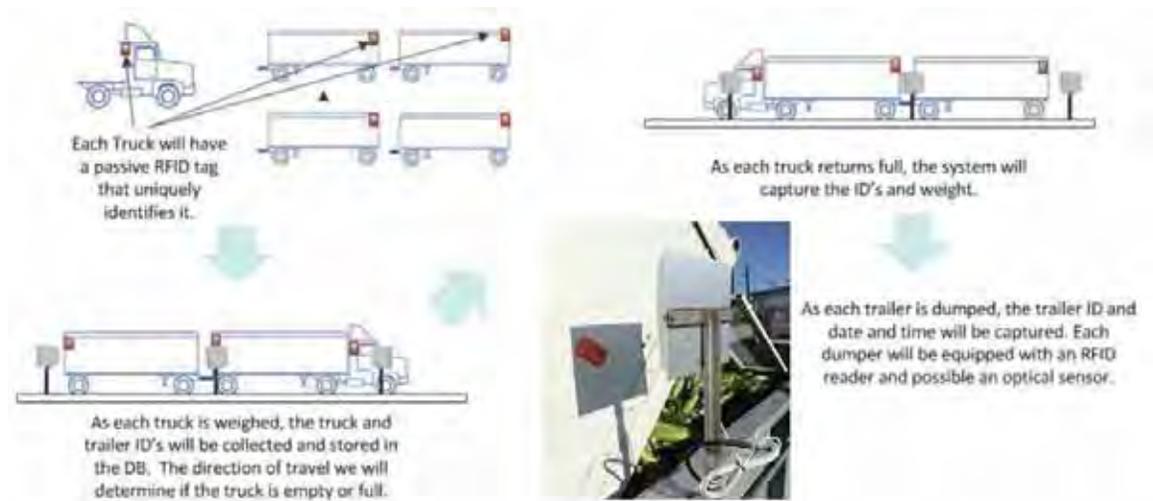


Figure 5. RFID tagging strategy on tractors and trailers

To properly implement the RFID tracking system, the vehicles for transporting corn from the field to the plant were installed with RFID tags and RFID readers were installed at the critical points in the plant to capture the needed tracking information such as tractor and trailer identification number and the time stamp as the vehicle drive through the critical points.

Figure 5 shows the RFID tagging strategy for the tractors and trailers. First, whether proof UHF passive RFID tags were installed on a specific location on the tractors and trailers to achieve maximum reading accuracy and thoroughly tested for reliability before harvesting season was started. Each RFID tag was programmed with a unique identification number, which was assigned to the tractor or trailer that was tagged with.

To start the operation, the tractor driver first picks up the two empty trailers parked in the shipping yard and heads to the harvesting field. As the tractor and trailers leave the plant through the scale house, the RFID reader mounted at the scale house reads the RFID tags on the tractor and trailers, identifies the tractor and trailers and automatically creates an association between the tractor and the two trailers as one vehicle. It also records the time the driver leaves the plant.

As the driver returns from the field with fully loaded fresh corn, the tractor and trailers were driven through the scale house and read again by the RFID reader. The system identified the tractor and trailers, weighed the tractor load on the scale and recorded the time of weighing or entering the plant. When it is time for unloading, each trailer is driven to one of the dump stations, as the trailer bed is lifted and the fresh corn are being dumped, the RFID tag mounted at the end of the trailer bed is read and triggered the system to record the dumping time. At the same time the trailer was identified again by reading its RFID tags. Thus, the amount of corn being dumped to the station can be automatically calculated with the accurate time stamp. Based on the recorded tractor leaving, returning, and dumping time, more important operational information could be derived such as: (1) field trip time; (2) yard parking time; (3) number of trailer loads waiting for dumping, and (4) number of empty trailers available for next field trip. These types of information provide very valuable information for real time operational management to improve productivity.

#### RFID tracking hardware setup

Based on system design, there were three RFID reading points required to capture critical tracking information: (1) Scale house; (2) dump station A&B; and (3) dump station C.

#### **Scale House**

One fixed RFID reader and three RFID reader antennas were mounted on the three posts outside the scale house along the weighing scale to identify tractors and trailers leaving and arriving at the plant Figure 6.

##### i) RFID reader

The fixed RFID reader installed inside a box that mounted on a metal post outside the scale house. Intermec network RFID reader IF2 (Figs 6&7) was used to read two RFID tags on the two trailers. The Intermec IF2 reader is a compact, cost-effective network reader designed to support diverse RFID applications in both enterprise and industrial environments that require a scalable RFID system with a low cost per read point. The IF2 supports Power over Ethernet, four mono- or bi-static RF ports, built-in powered general purpose input output (GPIO) control, and both standards-based LLRP and Intermec's easy to use Basic Reader Interface (BRI) application interfaces, enabling scalable low-cost deployments for improved return on investment (ROI). This reader is also capable of Ethernet communication for remote access and control through Internet.

##### ii) RFID Antennas

There were three RFID antennas installed at the scale house (Fig 6). The first one was installed on the top of the front window along the weighing station. It was so positioned

to have better signal receiving for the RFID tag on the tractor. The other two were mounted on the two posts along the side of the scale.



Fig 6. RFID reader and ante

The RFID antennas are IA33A Circularly Polarized Panel antennas and are appropriate for FCC regulated environments. They have an E-Plane and H-Plane beam width of 65 degree at 3 dB and are operated in the frequency range of 902-928 MHz with maximum input power of 1 Watt and a gain of 7 dB. It is suitable to support all fixed RFID readers and vehicle mount readers.

### Dump Station

Figure 8 show the dump station (Fig 8a) and RFID reader and antennas installation at Washington Pilot Plant B. There are two RFID readers and two antennas installed at the two dump stations.



Fig 8. Dump Station and RFID Reader/Antenna installation

i) RFID readers

There was one fixed RFID reader installed inside a box that mounted on the side of each of the two dump stations (Fig.8a). The RFID reader (black one in Fig. 9) was used to identify the dumping trailer and it is the same Intemec model as the one at scale house. It was also used as a triggering device to record the dump time as the RFID tag mounted on the top side of the trailer moves into RFID reading zone, as shown in Fig. 8d when the trailer is lifting its loading bed for dumping (see Figs. 8c and 8d).



Fig 9. RFID reader at Dump Station

## ii) RFID Antennas

There is one RFID antenna installed at each of the two dump stations (see Fig 8c and 8d). It was mounted on the metal pipe on the sidewall of the dump station. They are the same type of RFID antennas used at the scale house location. The reading accuracy and reliability of RFID readings depends on the location of the RFID tag on the trailer and sensitivity and power of the RFID reader. It was essential to conduct testing runs to finalize the RFID tag location on the trailer.

## Tracking software development

### **Deployment topology**

i) an array of up to four RFID antennas were installed only on one side of the weigh scale. These antennas connect to one RFID reader. The RFID reader connects to a LAN line to transmit data to the application.

ii) An RFID reader with one antenna was installed on each dumper location. Each RFID reader connects to a LAN line to transmit data to the application.

iii) There was not integration to existing customer backend systems. Only network and power infrastructure is required.

iv) There was a computer in the weigh station that could access the application inbound/outbound data input screen. Operator at weigh station could see the tractor/trailers and determine if it was inbound or outbound and selected the Inbound or Outbound screen. Trailer load ID and weight are manually entered during the pilot.

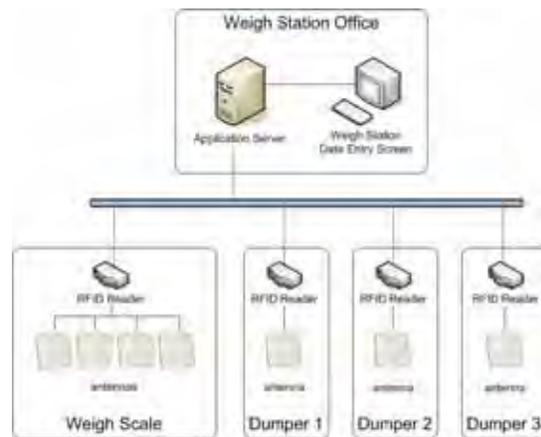


Figure 10. RFID system deployment topology

### **Tag-to-Vehicle Association Screen**

This screen (Fig.11) displays a list of tractors and trailers that have been tagged. Additional filtering of data on any column is possible by simply entering the search string in the "Filter" field. For example, to see only tractor vehicle type, just type "Tractor" and the list will dynamically sort to show only tractors. To search for a specific vehicle, just type in the vehicle ID, e.g. "TR 1012".

To create an association of RFID tag Id to a tractor or trailer, click on "Add" button and enter the data in the panel below.



## Tractor and Trailer List

**Tractor and Trailer List**

Filter:  | 24 rows |   

Tractor-Trailer Id	Vehicle Type	Tag Id
EA1278H	Tractor	31140000000C100000001041
TR1012	Trailer	31140000000C2000000000891
TR1039	Trailer	31140000000C2000000000AB1
TR1137	Trailer	31140000000C2000000000311
TCP-1143	Tractor	31140000000C1000000001571
TCP-1281	Tractor	31140000000C1000000001051

### Tag and Vehicle Association Data Input

Vehicle Type:

Vehicle ID:

RFID Tag:

Figure 11. Tag-to-Vehicle Association Screen

### Weigh or Scale Station Data Input Screen

As shown in Fig 12, when a tractor-trailer drives onto the scale, the RFID tags are read. Weigh Station operator sees the tractor/trailer and can determine if it is an outbound or inbound load. If it is outbound, operator selects the Outbound Tab. The screen is populated with the tractor-trailer information.

Weigh Station operator enters:

- Load ID
- Field Location
- Tare Weight (based on scale reading)

Click “Save” after data is entered.



The screenshot shows the 'Weigh Station Data Input' interface with the 'Outbound' tab selected. The form contains the following fields and values:

Field	Value
Load ID	C022811-009
Field Location	Lot-123456
Tare Weight	13147 lbs
Tractor ID	EA1278H
Trailer ID (1)	TR1012
Trailer ID (2)	TR1039
Date/Time	02-25-2011 09:37:22

A 'Save' button is located at the bottom center of the form.

Figure 12. Weigh Station Outbound Screen

If it is inbound, operator selects the Inbound Tab. The screen (Fig. 13) is populated with the tractor-trailer information. Weigh Station operator enters:

- Gross Weight (based on scale reading). Net weight is then calculated

Click “Save” after data is entered.



The screenshot shows the 'Weigh Station Data Input' interface with the 'Inbound' tab selected. The form contains the following fields and values:

Field	Value
Load ID	C022811-009
Field Location	Lot-123456
Tare Weight	13147 lbs
Gross Weight	19263 lbs
Net Weight	8136 lbs
Tractor ID	EA1278H
Trailer ID (1)	TR1012
Trailer ID (2)	TR1039
[Out] Date/Time	02-25-2011 09:37:22
[In] Date/Time	02-25-2011 11:23:45

A 'Save' button is located at the bottom center of the form.

Figure 13. Weigh Station Inbound Screen

## Report Dashboard

### i) Inbound/Outbound Load Report

Search criteria can be:

- Load ID (if blank, it means all loads for the selected date range)
- Date range (default is current day)

User clicks the “Search” button to retrieve data. Additional filtering of data on any column is possible by simply entering the search string in the “Filter” field. For example, to see all loads from a specific Field Location, just type in the field location (e.g. “Lot-123481”), or to search for a specific Load Id, type in the Load Id string, etc.

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### Inbound/Outbound Load Report

Load ID:  Show:  From:  To:

**Load ID Details**

Filter:  | 18 rows |

Load ID	Field Location	Net Weight (lb)	Status	Out Time	In Time	Tractor ID	Trailer ID (1)	Trailer ID (2)
C022011-011	Lot-123456		Out	02-25-2011 09:56:37 AM		TCP-2114	TR1001	TR1117
C022011-010	Lot-123456		Out	02-25-2011 09:47:18 AM		TCP-2055	TR1046	TR1008
C022011-009	Lot-123456	6138	Received	02-25-2011 09:37:33 AM	02-25-2011 11:23:45 AM	EAI278H	TR1012	TR1039
C022011-008	Lot-123456	8207	Received	02-25-2011 09:29:41 AM	02-25-2011 10:51:36 AM	TCP-1143	TR1137	TR1088
C022011-007	Lot-123437	6199	Received	02-25-2011 09:15:11 AM	02-25-2011 10:27:31 AM	TCP-1004	TR1077	TR1031
C022011-006	Lot-123437	6182	Received	02-25-2011 08:47:24 AM	02-25-2011 10:01:52 AM	TCP-1193	TR1152	TR1071
C022011-005	Lot-123437	6203	Received	02-25-2011 08:25:34 AM	02-25-2011 09:34:25 AM	TCP-1186	TR1026	TR1035
C022011-004	Lot-123451	6220	Received	02-25-2011 08:17:42 AM	02-25-2011 09:05:56 AM	TCP-1027	TR1174	TR1052

Figure 14. Inbound/Outbound Load Report

ii) Dump Report

Search criteria can be:

- Dumper ID (if blank, it means all dumpers for selected date range)
- Date range (default is current day)

User clicks the “Search” button to retrieve data.

Additional filtering of data on any column is possible by simply entering the search string in the “Filter” field. For example, to see all loads dumped from a specific Field Location, just type in the field location, or to search for all loads dumped at a specific dumper, type in the Dumper Id string (e.g. “Dumper 3”), etc.

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### Dump Report

Dumper ID:  Show:  From: 02/25/2011 To: 02/25/2011

**Dump Defaults**

Filter:  | 17 rows

Dumper ID	Load ID	Trailer ID	Field Location	Net Weight (lb)	Dump Time	In Time
Dumper 1	C022811-009	TR1012	Lot 123456	3008	02-25-2011 12:15:27 PM	02-25-2011 11:23:45 AM
Dumper 2	C022811-009	TR1038	Lot 123456	3058	02-25-2011 12:13:19 PM	02-25-2011 11:23:45 AM
Dumper 1	C022811-009	TR1127	Lot 123456	3102	02-25-2011 12:05:11 PM	02-25-2011 10:51:36 AM
Dumper 2	C022811-008	TR1088	Lot 123456	3103	02-25-2011 12:05:11 PM	02-25-2011 10:51:36 AM
Dumper 2	C022811-007	TR1077	Lot 123427	2989	02-25-2011 11:50:47 AM	02-25-2011 10:27:31 AM
Dumper 3	C022811-007	TR1031	Lot 123427	3009	02-25-2011 11:42:36 AM	02-25-2011 10:27:31 AM
Dumper 1	C022811-006	TR1152	Lot 123427	3091	02-25-2011 11:37:24 AM	02-25-2011 10:01:52 AM
Dumper 2	C022811-006	TR1073	Lot 123427	3091	02-25-2011 11:32:08 AM	02-25-2011 10:01:52 AM

## 5. Results and accomplishments

### 1) Results

The Washington pilot project has successfully implemented with RFID enabled tracking system of tractor and trailers from harvesting field to processing plant. In the period of 50 days from August 12 to October 06, 2011, the tracking system was running 24/7 continuously without breakdown. The effectiveness of the system was evaluated by looking at reading rate or accuracy at both scale houses and dump stations. Tables 1 and 2 show the performance of the two installed RFID systems. The accuracy of RFID system at scale house was 99.9% after adjustment of RFID antennas on August 17<sup>th</sup>.

Table 1. RFID reader performance at Scale House

	Number of tractors	Number of trailers	Total number of readings
Recorded	2,126	4,252	6378
Missed	3	6	9
Reading rate	99.85%	99.85%	99.9%

Table 2. RFID reader performance at three Dump Stations

	Dump Stations			
Performance	1	2	3	Average
Missed number of readings	56	49	63	56
Total number of readings	1605	1757	592	3,954 (Total)
Reading rate	96.5%	97.2%	89%	94.2%

## 2) Accomplishments

- Developed and implemented automatic RFID enabled tractor and trailer tracking system from the harvesting field to the processing plant
- Trained and educated food processors about smart traceability technologies and systems
- The implemented RFID tracking system identified a total of 2126 tractors and 4252 trailers with a total of 57,894 tons of fresh corn during the 2011 harvesting season period from August 12 to October 16 with an accuracy of 99.9%.
- RFID tracking system was able to generate more valuable data and information the previous paper based tracking could not generate and track for. Such as:
  - Real time number of tractor and trailers in the plant;
  - The amount of corn in the shipping yard waiting for production;
  - Average amount of time for a round trip from the harvesting field to the plant
  - The real time amount of corn being dumped in the dump stations
- Saving of labor that was required to manually identify tractors and trailers coming in and out of the plant
- Saving of labor that records dumping time at each dump station
- Saving of labor that is required to reconcile the daily manual recording errors
- Shorten the time for generating trip tickets
- Shorten the waiting time for the tractor drivers to get right trip tickets

## 6. Conclusions and recommendations

Washington pilot project was successfully implemented and RFID enabled tracking system was proved to be technically feasible and could generate more valuable information has the potential to improve productivity of a food processing plant and save labor and reduce human errors caused by paper based tracking system.

Food Processors with similar vertically integrated food production systems have potential to gain value from certain RFID applications and should perform thorough due diligence before deciding on a particular project.

We recommend that further study of hardware to withstand tough industrial conditions and ways to advance dependability of the technology to interact consistently with RFID tags, software and legacy systems be conducted.

### **Oregon Pilot Project**

Oregon Plant A was chosen to be the second pilot project to demonstrate the effectiveness of RFID enabled tracking system to improve food safety recall process. This is a small local food processor that produces high quality frozen veggie burger patties using fresh vegetables and grains. To develop an effective recall process, it is essential to understand its existing internal inventory system from raw ingredients to finished products.

#### **1. Previous Internal Inventory System**

There are currently 8 different frozen veggie burger products at Oregon Plant A, and they manufactured from over 45 unique ingredients with a monthly production of 17,000 lbs. Figure 16 below shows the existing inventory system. At receiving, the ordered food ingredients were received and stored into three different storage areas: freezer, refrigerator, and standard room storage. To start the manufacturing process, the required ingredients for a veggie burger are brought to formulation room from the three storage areas. They were then weighed according to its formulation. Then, all ingredients are mixed uniform ally before being formed into right size patties and then packaged into finished products. They are finally moved to the freezer to be frozen and held for shipping.



Figure 16. Oregon Plant A Internal Inventory System

## 2. Previous recall system

To meet food safety recall requirements, all manufacturing, inventory, receiving and shipping information of the ingredients and finished products have to be properly documented, organized, and kept safely for quick reference or for looking up. The previous mock recall system was entirely paper based. All lots of ingredients were tracked by recording quantities/lots used on batch sheets, which were used to manufacture finished product. The finished product was then tracked by date code in an excel spreadsheet.

There are usually two types of product recalls for Oregon Plant A: (1) product recall caused by one or more contaminated ingredients used for a finished product, and (2) product recall caused by contamination from the company's manufacturing process itself. The former has to be tracked to a specific ingredient and its suppliers and the latter will be limited only within company itself.

In order to perform a product recall, relevant records and documents have to be evaluated to quickly (1) allocate the physical location or storage of the recalled ingredients and products, and (2) count actual inventory of the recalled ingredients and products.

## 3. Scope of work

The scope of this pilot project is to develop an electronic inventory tracking system and implement mock recalls demonstrating its effectiveness compared to previous paper based tracking system.

#### 4. Smart electronic inventory tracking system

##### 1) Tracking tools

There were two types of data capturing or identification tools used in this smart tracking system: (a) handheld barcode scanning system, and (b) handheld RFID tracking system. As shown in Figure 17, the barcode scanning system consists of a smart phone, a phone mount, and a Bluetooth barcode scanner.



Fig17. Handheld bluetooth barcode scanner

This low cost tracking system combines a barcode scanner with a smart phone. The barcode scanner not only identifies a product by scanning the barcode label and also provides battery to the smart phone, which can be used to access and run the web based traceability database.

Figure 18 shows the RFID tracking system. It consist of a handheld RFID reader and portable computer and smart RFID labels. It can remotely identify a product through the RFID labels and communicate Product identification information through a web based traceability database and information system.

The barcode scanning system was used to identify the ingredients at case level and the RFID tracking system was used to track the ingredients and finished products that were palletized.

##### 2) Mobia Solutions Web based information system

The main traceability application software used in this pilot project is called Mobia Solutions, which



Fig 18. RFID tracking system

converts current paper based tracking system to an electronic tracking system with two required steps: (1) Use barcoding system to identify and capture an inventory item, either an ingredient being received or a finished product for shipping out, and (2) store and manage the scanned item through a cloud database that can be accessed and used through smart phones for data input and data management including recording, organizing, sorting, retrieving and reporting.

Mobia Solutions is a portable and highly configurable web based manufacturing, warehouse and quality management solution with total traceability, genealogy, and recall support. Mobia was designed to run either in a standalone mode or fully integrated with existing accounting and ERP systems. Mobia can run on virtually any device that runs a browser and supports a variety hardware including barcode scanners.

Mobia Solutions manages and tracks everything from order entry to receiving, warehousing, manufacturing, and order taking and fulfillment. Every step is then tracked and recorded providing the necessary data for what Mobia calls “Any point to every point traceability”.

Figure 19 shows the main page of the Mobia Solutions, which displayed four major functions of Mobia Solutions, including: Receiving, Warehouse, Manufacturing, and Shipping. The following section described how this tracking and inventory information system works and how it can be used to effectively conduct a food product mock recall for Oregon Plant A, a natural veggie burger manufacturer.

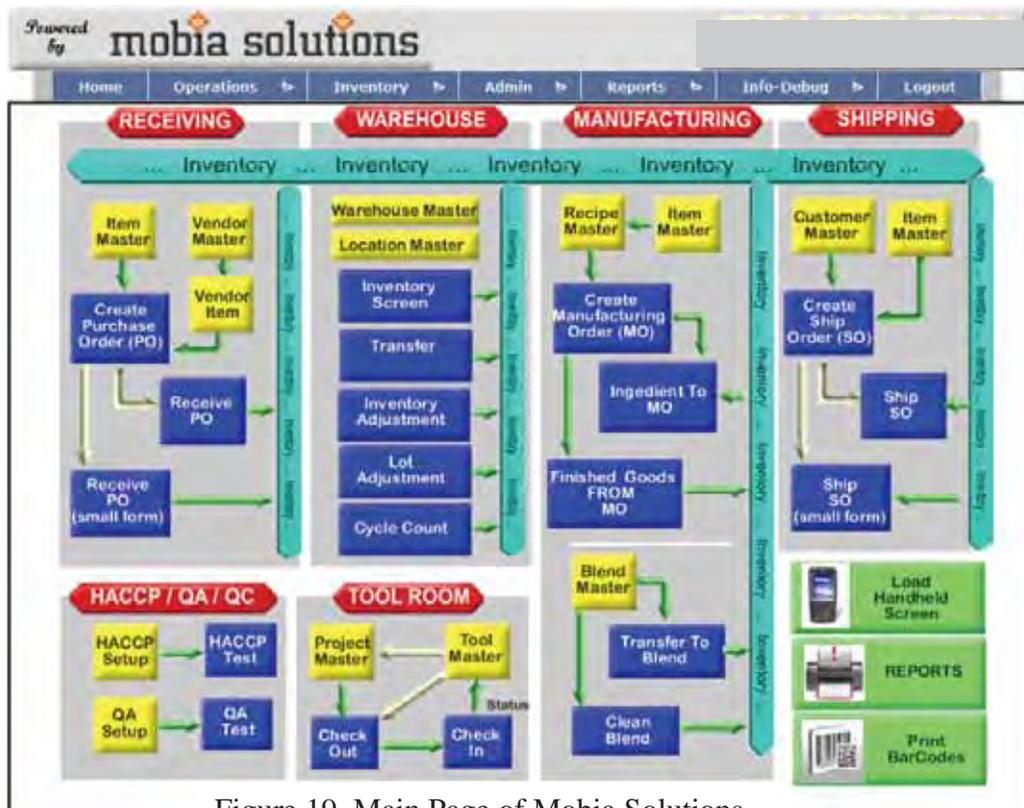


Figure 19. Main Page of Mobia Solutions

5. Procedure for preparing and conducting a product mock recall

- 1) Collect and enter the following information at the receiving dock:
  - i. The vendor
  - ii. The Item
  - iii. The vendor's lot# / manufacturing date
  - iv. The carrier

2) Input company's internal lot number (Figure 20)

To insure the uniqueness of each vendor's lot number that is distinct from other Vendors, an internal lot number has to be created. Mobia Solution allows to input the internal lot number and create a link that associates the two number together to avoid miss-identification.

3) Create manufacturing management (Figure 21)

The screenshot shows the 'PO Receive' form with the following data:

- WH: Dry
- PO Num: P001837
- Ven Name: LPM SYSTEMS
- Carrier: Vendor

Below the form fields is a table with the following columns: Item ID, vItemDesc, vQTY, vTotal, vQty This, First, Last, Lot, Vendor, and TotLot.

Item ID	vItemDesc	vQTY	vTotal	vQty This	First	Last	Lot	Vendor	TotLot
3m 371 2" x 1500m Kap	Kap	5.00	5	PAL123	L000421	V06762	LOC1		

Figure 20. Input an internal tracking lot number

To better track number of ingredients through manufacturing process which is essentially mixing multiple items/lots together. It requires to collect the data of what ingredient lots went into which finished goods lots. However since many of the product recipes call for intermediates (WIP), tracking gets very complex very quickly so the recipe and manufacturing management screens were created to manage and track manufacturing process.

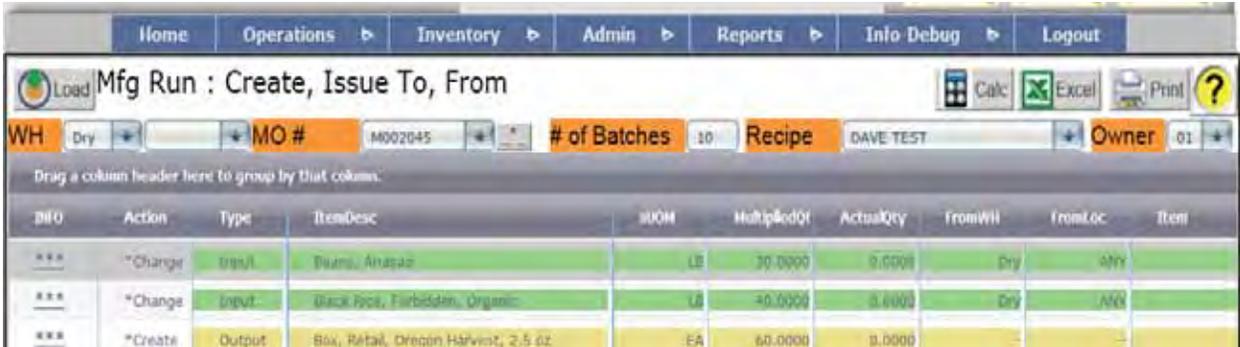
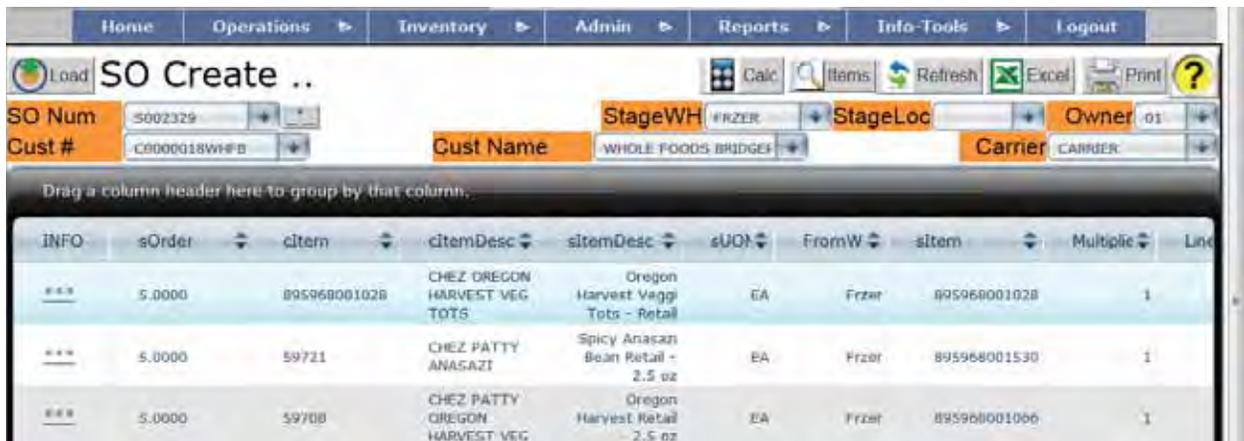


Figure 21. Recipe Management Page

4) Create shipping management records

The shipping process is basically the reverse of receiving. Initial shipping related records are first generated at the time the sale orders are created, including customer contact information and the type and number of products being ordered (Figure 22).

Figure 22. Sale Order Management Page



Based on this original sale order, a shipping or pick up inventory record can be created by importing and inputting the needed shipping information. Figure 23 shows the type of shipping information can be recorded in this inventory system, including product name, inventory or storage location, container number, availability, and shipping quantity, and more.

Based on that information, the shipping personnel could be directed to the specific lots, pallets & locations, or may optionally choose alternative inventory as long as that inventory exists in the system and the details recorded. Finally, shipping manifest may be automatically filled in and printed after confirmation with specific lot data, as shown in Figure 24 below.

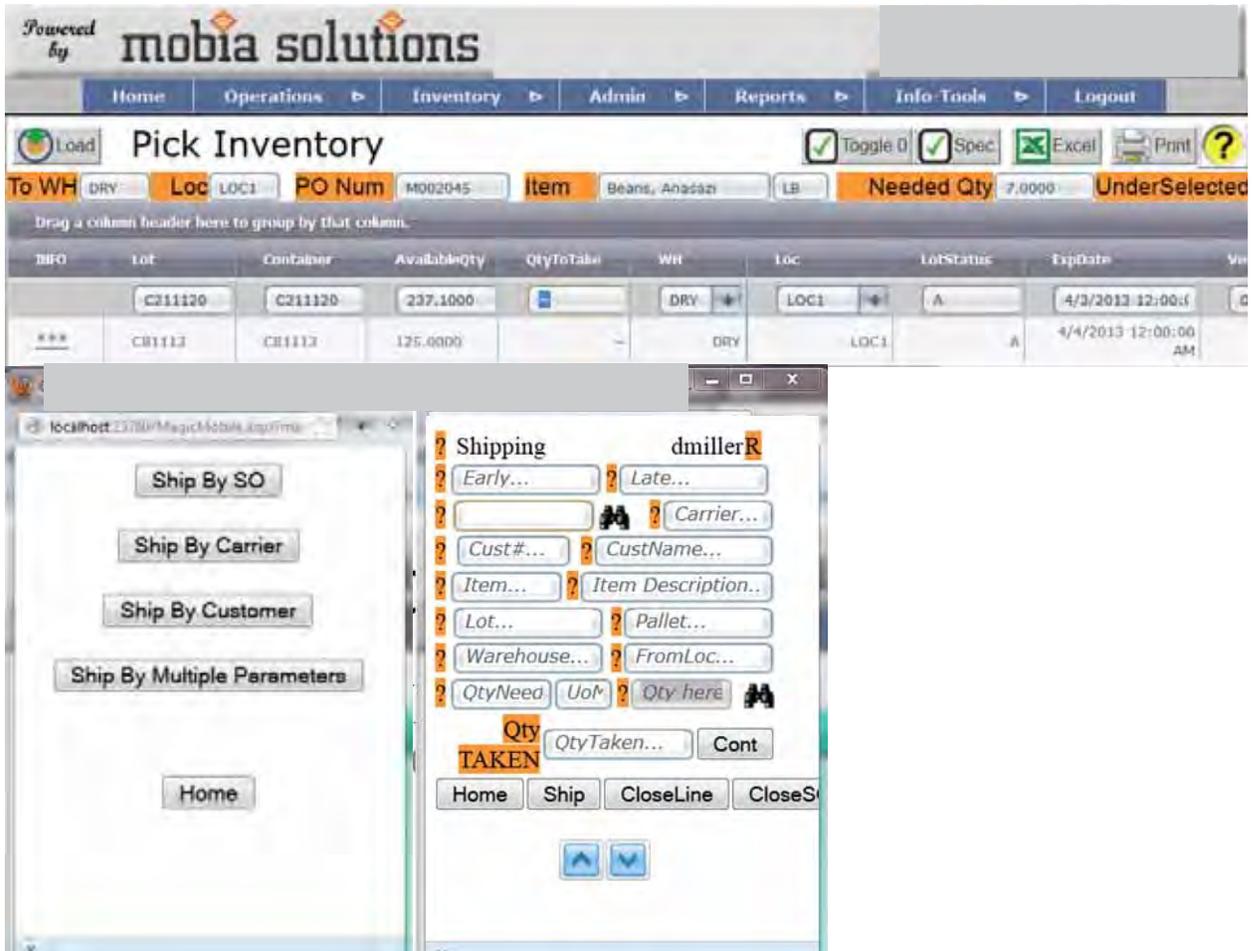


Figure 23. Shipping management Page

**Shipment Manifest - S001409**

Company name  
212 Grim Street  
Portland, Or 66666  
Attn : Billy 555-55-1212

<b>Order Number:</b> S001409 	<b>Vendor Number:</b> C000003FSAP <b>Vendor:</b> FSA-PORTLAND FSA-Portland Woodburn, OR 97071 USA	<b>Carrier:</b> <b>Seal #</b>
---	--	----------------------------------

<i>Item</i>	895968001004 	Hammerhead Food Service - 3.4 oz	6	EA	<i>Lot</i> _____
<i>Vendor Item</i>	174373		6	CS	<i>Vendor Lot</i> _____
Price per \$ CS \$ Sub		<i>To Warehouse</i> DRY		<i>To Location</i> LOC1	<i>Pallet</i> _____
		Notes: _____			

---

<i>Item</i>	895968001004 	Hammerhead Food Service - 3.4 oz	6	EA	<i>Lot</i> _____
-------------	---	----------------------------------	---	----	------------------

Figure 24. Shipping Manifest Sheet

5) Conduct a mock recall

Once all product tracking data and information related to receiving, manufacturing, shipping are input into the Mobia Solution tracking system, a product mock recall can be done at any time and only take a few seconds.

- i. Select the types of recall from the “report” menu: “Track and Trace By LOT” (Figure 25).
  - ii. Enter the lot number and press “Trace Lot”... (Figure 26)
  - iii. Generate Recall Report (Figure 27)
- Mobia then produces two reports. One report lists all the lots that the target lot was an ingredient in and/or the raw material lots that went into the target lot and gives us the option to put all related lots on internal hold.

The other report gives a detailed listing of all customers that we shipped the lot to, including dated, PO#, carrier, etc. and provides the contact information of the customer.

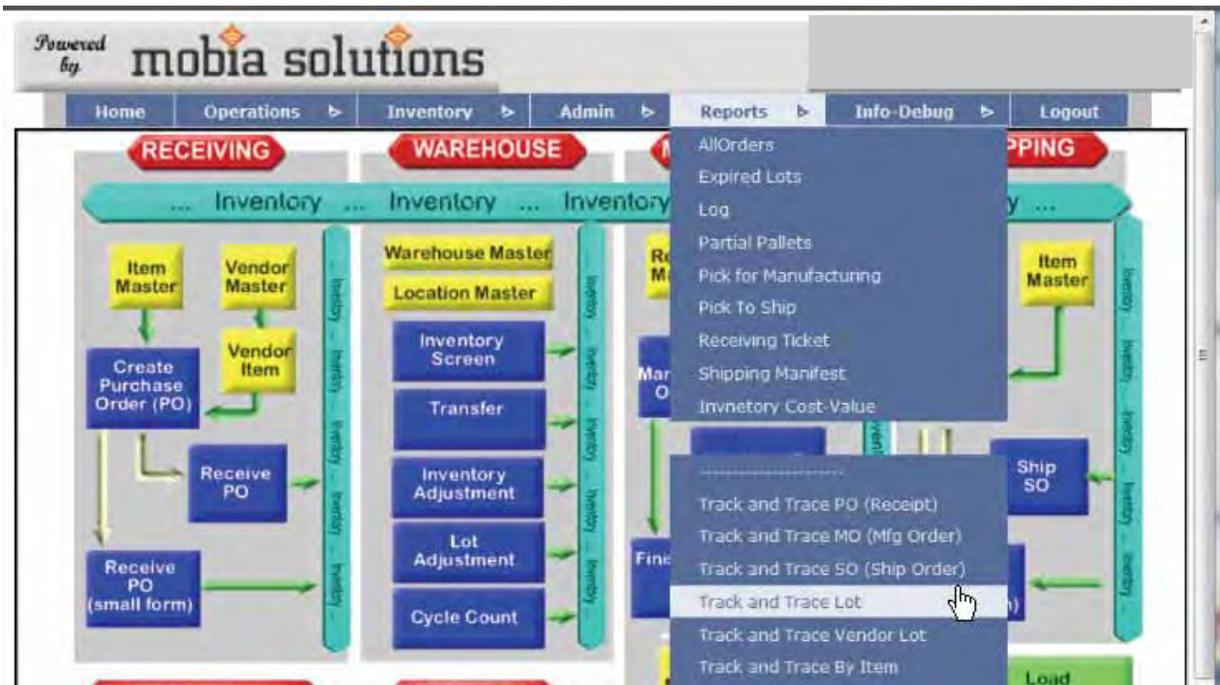


Figure 25. Track Function Page

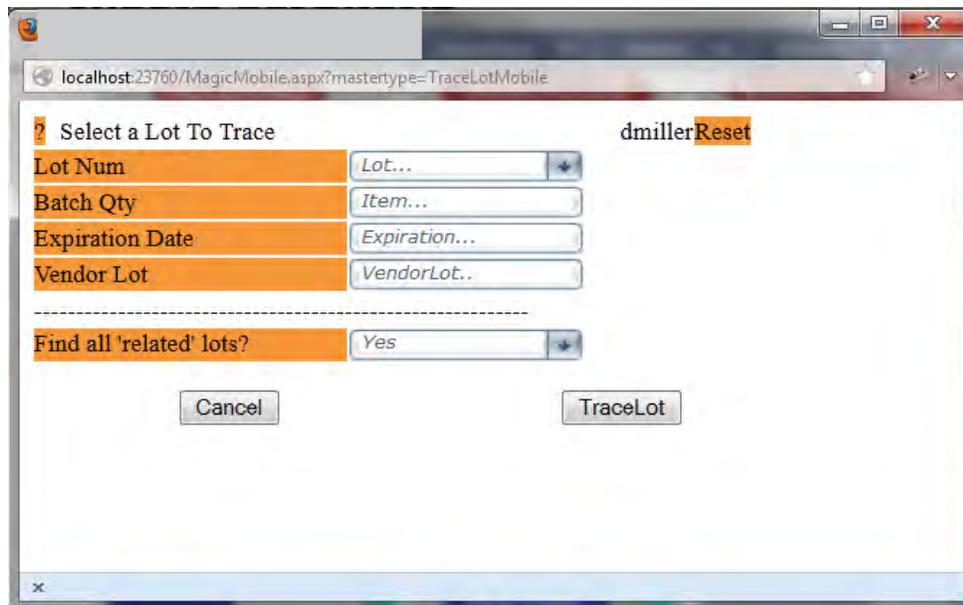


Figure 26. Lot Trace Screen

In Figure 22, it is seen that the generated recall report not only contains both contact information of the manufacturer and customer, product information with item

number, order number, and lot number, it also has the carrier name and shipping date and time.



Figure 27. Reall Report Screen

## 6. Results and accomplishments

A real time mock recall on two finished products related to one contaminated ingredient sweet potato was conducted on May 29, 2012 using the Mobia Solutions tracking and inventory system. Tables 3 to 6 summarize the recall results.

Table 3: Recalled Products Information

Item Description	Unit	Lot Number	Pallet	Qty	WH	Loc	QaStat	Exp. Date
Natural Product1 Retail, 2.5 oz	EA	L130518	C000033	1	MFG	LOC1	A	11/26/2012
Natural Product1 WIP, 2.5 oz Retail	LB	L130518	C000034	302	MFG	LOC1	A	11/26/2012

As listed in Table 3, two products selected for this mock were 2.5 oz retail Natural Product1 veggies burgers and 2.5 oz retail Natural Product1 WIP. There were 1 pallet of Natural Product1 veggie and 302 lbs of Natural Product1 WIP were shown in inventory.

Table 4. Two product recall data

Item Description	Qty	PHYSICAL COUNT	% Accuracy	Time Start	Time Stop	Total Time (minutes)	# of People
Natural Product1 Retail 2.5 oz	1	1	100.00%	15:30	15:43	0:13	2
Natural Product1 WIP, Retail 2.5 oz	302	302	100.00%				

The recall data is summarized in Table 4 for the two recalled products. The recall accuracy was 100% and was completed in 13 minutes by two people.

There were 20 lbs of the recalled contaminated ingredient, sweet potato, stored in the cooler, which had an expiration date of 11/23/2012 (Table 5).

Table 5: Recalled Ingredient Information

Item Description	Unit	Lot Number	Pallet	Qty	WH	Loc	QaStat	Exp. Date
Sweet Potato	lb	P120920020	C000009	20	COOLER	LOC1	A	11/23/2012

Table 6 shows that the sweet potato recall was completed in three minutes with a recall accuracy of 98% by two people.

Table 6. Ingredient recall data

Item Description	Qty	PHYSICAL COUNT	% Accuracy	Time Start	Time Stop	Total Time (minutes)	# of People
Sweet Potato	20	19.6	98.00%	15:43	15:46	0:03	2

Accomplishments of the Oregon pilot project can be summarized as follows:

- Developed and implemented the electronic tracking system in Oregon Plant A

- Successfully conducted mock recall on two products and one contaminated ingredient
- Trained and educated food processors about smart traceability technologies and systems
- Eliminated paper based recall system
- Convert all paper based product recall and inventory system to an electronic inventory and recall system
- Significantly reduced recall time
- Significantly improved recall accuracy
- Significantly improved existing inventory system and production efficiency

## 7. Conclusions and Recommendations

Oregon pilot project was successfully implemented and the developed smart electronic tracking system can significantly improve food safety related recalls with 100% accuracy for two-finished product recall and 98% for ingredient recall.

Food processors that still use paper based inventory systems have potential to improve food safety recall but also improve the efficiencies of receiving, shipping, and inventory, therefore, overall production efficiency if they convert to similar electronic tracking systems.

*B. Present the significant contributions and role of project partners in the project.*

### **Oregon Pilot Project**

There were four different partners involved and contributed significantly to the success of this project. They were: The Oregon Plant A (a natural food manufacturer), Northwest Food Processor Association, Food Innovation Center of Oregon State University, and Mobial Solutions.

Dave Klick and David McGiverin from NWFPFA managed the project in terms of planning, selecting pilot project candidate as well as budget management.

Dr. Qingyue Ling of Food Innovation Center provided technical consulting for the project in the areas of identify and select technical solution providers, most importantly worked with solution provider to collect site information and design the smart electronic tracking system, including hardware and software set up.

Dave Miller of Mobia Solutions, Inc. design and configured the tracking application software and also trained the operational managers at Oregon Plant A to use the software for inventory and recall management.

### **Washington Pilot Project**

There were also four organizations partnering together to work on the Washington pilot project. They were: Washington Plant B (a corn processing plant), Northwest Food

Processor Association, Food Innovation Center of Oregon State University, and the solution provider, INSYNC, Inc.

## **GOALS AND OUTCOMES ACHIEVED**

1. *Supply the activities that were completed in order to achieve the performance goals and measurable outcomes for the project.*

Please refer to the major activities listed on Page 4 to 6, completed during the whole research period from October 2009 to September 2012.

2. *Provide a comparison of actual accomplishments with the goals established for the reporting period.*

### **Proposed measurable outcomes**

The number of specialty crops food processors in Oregon and Washington with RFID enabled traceability systems will be increased from current 0 to 7 or more companies in two years after the pilot projects are completed.

Average recall time (traceability) for these companies using RFID technology will be at least 50% faster and result in 15% saving in labor cost.

The average productivity improvement for these companies will be 15% in labor saving, 10% reduction in inventory efficiency, and 20% time reduction in receiving and shipping. NWFPA will conduct before after productivity and traceability performance surveys of all additional companies adopting the RFID-enabled systems after the first pilot participants.

In 2010 and 2011, an NWFPA EXPO RFID workshop will be held and at least 30 or more food processors will be expected to participate. Also those years, briefings will be conducted for at least 55 top management delegates attending the Annual Northwest Food Processors Executive Business summit.

### **Actual Measurable Outcomes**

#### 1) Oregon Plant A:

- a. The amount of labor saved for recall:  
Previous: 3 persons  
Current: 1 person  
Percentage saved: 200%, compared to 15% target
- b. The amount of recall time  
Previous: 4 hrs or 240 mins  
Current: 16 mins  
Percentage saved: 1500 %, compared to 50% target
- c. Inventory efficiency:  
Previous: 2 persons for 7.5 hrs/wk or 15 person hrs/wk  
Current: 1 person for 5 hrs/wk or 5 person hrs/wk

Percentage reduction: 300%, compared to 10%

- d. Receiving and shipping time reduction

Previous: 4.5 hrs/day

Current: 1 hr/day

Percentage reduction: 450%, compared to 20% target

- 2) Washington Plant B for 2011 harvesting season:

- a. The amount of labor saved:

Previous: 3 persons

Current: 2 persons

Percentage saved: 150%, compared to 25% target

- c. Inventory efficiency:

Previous: 3 persons for 8 hrs/day or 24 person hrs/day

Current: 2 persons for 4 hrs/day or 8 person hrs/day

Percentage reduction: 300%, compared to 15% target

- c. Receiving and shipping time reduction

At scale house

Previous: 5 mins/tractor x 40 tractors/day = 200 mins/day

Current: 1 min/tractor x 40 tractors/day = 40 mins/day

Percentage reduction: 500%, compared to 20% target

At Dump stations

Previous: 2 mins/tractor x 40 tractors/day = 80 mins/day

Current: 0.2 min/tractor x 40 tractors/day = 8 mins/day

Percentage reduction: 1000%, compared to 20% target

- 3) The progress and outcomes of the two pilot projects were presented and shared with overall 1200 Food processors and companies in the annual NWFPA EXPO Traceability Workshops and other professional conferences from 2010 to 2012.

### **Year 2010**

Traceability System Forum at the 94th Annual Northwest Food Manufacturing & Packaging Expo, Oregon Convention Center, Portland, Oregon, January 20, 2010



FDA's Michael Taylor opened the session with brief remarks on the importance of good traceability systems to FDA investigations of food contamination. Additional presentations were given with Q&A include: 1) Highlights from IFT's Food Traceability Recommendations to FDA; 2) Exciting new opportunities to automate traceability through Open Data Registry presented; and 3) a report on the USDA-funded specialty crop RFID Pilot Plant project, started in early 2010, along with actions by a coalition to investigate new technology and systems to improve existing food traceability.

Invited speakers were Michael Taylor JD, Michael Taylor, Senior Advisor to the Commissioner, U.S. Food & Drug Administration; Dr. Qingyue Ling, Ph.D., Oregon State University, RFID Food Applications Laboratory; Jeff Stein, Founder and CEO of the Open Data Registry; and David McGiverin, Productivity Measurement & Continuous Improvement Advisor, NW Food Processors Innovation Productivity Center. Over 50 industrial representatives participated in this conference.

Pre-Conference Workshop "RFID Applications in Food Chain", 2011 RFID Journal Live Conference, Pre-Conference Workshop, Walt Disney World Swan and Dolphin Hotel in Orlando, Florida. April 13-16, 2011. 21 international industrial representatives

Attended the workshop and Q&A session.

David McGiverin was the invited speaker and Dr Qingyue Ling participated in Q&A session. We presented our RFID traceability project with the following summary printed in the conference program agenda:

"In an industry-led initiative, the NWFPA (NWFPA), Oregon State University (OSU), the Oregon and Washington Departments of Agriculture, and RFID systems integrator InSync are collaborating on a 2010-2011 pilot project, in an attempt to bring RFID to the U.S. Northwest's \$21 billion food manufacturing industry. Traceability is critical, with issues ranging from product recalls and food safety to managing risk, improving plant productivity and stakeholder communications, and increasing supply chain visibility. In this session, hear how the pilot project is progressing, and how the group anticipates that RFID can bring efficiency and productivity benefits, including improved inventory management and product movement within a warehouse"

## **Year 2011**

Sponsored and organized 2011 NWFPA Expo Food Traceability workshop. Dr. Qigyu Ling presented "Traceability in Food Systems- Highlights from Institute of Food Technologists (IFT) Reports to FDA" to about 36 food processors and discussed industrial concerns about the Food Safety Modernization Act (FSMA), the

workshop was held at the Oregon Convention Center, Portland, OR, January 20, 2011,

### **Year 2012**

Northwest Food Processing Association and Food Innovation Center organized the 2012 NWFPA Expo Food Traceability Workshop, “Food Processing Productivity and Traceability Improvement Opportunities through RFID” held at the Oregon Convention Center, Portland, OR, January 17, 2012, Dr. Qingyue Ling presented the Outcome of the two pilot projects to 27 food processors and some expressed strong interests in applying the same RFID traceability systems to their own food manufacturing process.

### **BENEFICIARIES**

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

The groups that could benefited from this project include all food processors from small (Oregon Plant A) and to large sizes (Washington Plant B). For the ones that still use paper based inventory and tracking systems, they could be achieve more effective inventory management and fast and accurate recall by implementing the low cost electronic barcode tracking system. For ones that need more visible supply chain or improve internally or externally traceability, RFID enabled tracking system will be possible solution, especially it is applied to multiple application areas from receiving to inventory and shipping.

### **LESSONS LEARNED**

1. *Offer insights into the lessons learned by the project staff as a result of completing this project. This section is meant to illustrate the positive and negative results and conclusions for the project.*

#### a) Positives

- Company's leadership involvement and commitment from the beginning was key in successful implementation of this pilot project
- Selected right management members to form the project team
- It was essential to identify proper application areas that could achieve business vales for both participating companies or “low hanging fruit”
- Provided proper training and education to the operators
- Selected right solutions and solution providers
- Started small and slow to allow participant companies came to speed

#### b) Negatives

- The first Oregon Plant A Management team decision to quit the project after almost one year into project cause overall delay of the pilot project And resulted in not enough time to finish all objectives.

- Washington Plan B was too far way to have more site visit for technical support and testing work
- Short window of the harvesting season for Washington project created difficulties in planning and implementation
- Unable to take advantage of existing wireless network caused the project unexpected extra expenditure in wireless communication, thus limited funding for more testing and better performance

2. *Provide unexpected outcomes or results that were an effect of implementing this project.*

The first chosen Oregon pilot plant management team's decision to quit the pilot project caused significant delay of the whole project and left not enough time to finish RFID enabled tracking for the Oregon Plant A even though one year extension was granted.

3. *If goals or outcome measures were not achieved, identify and share the lessons learned to help others expedite problem solving.*

Due the over budget spending in the Washington pilot project, caused by unwillingness to share the wireless network in the plant, we did not have limited funding left for the second Oregon pilot project.

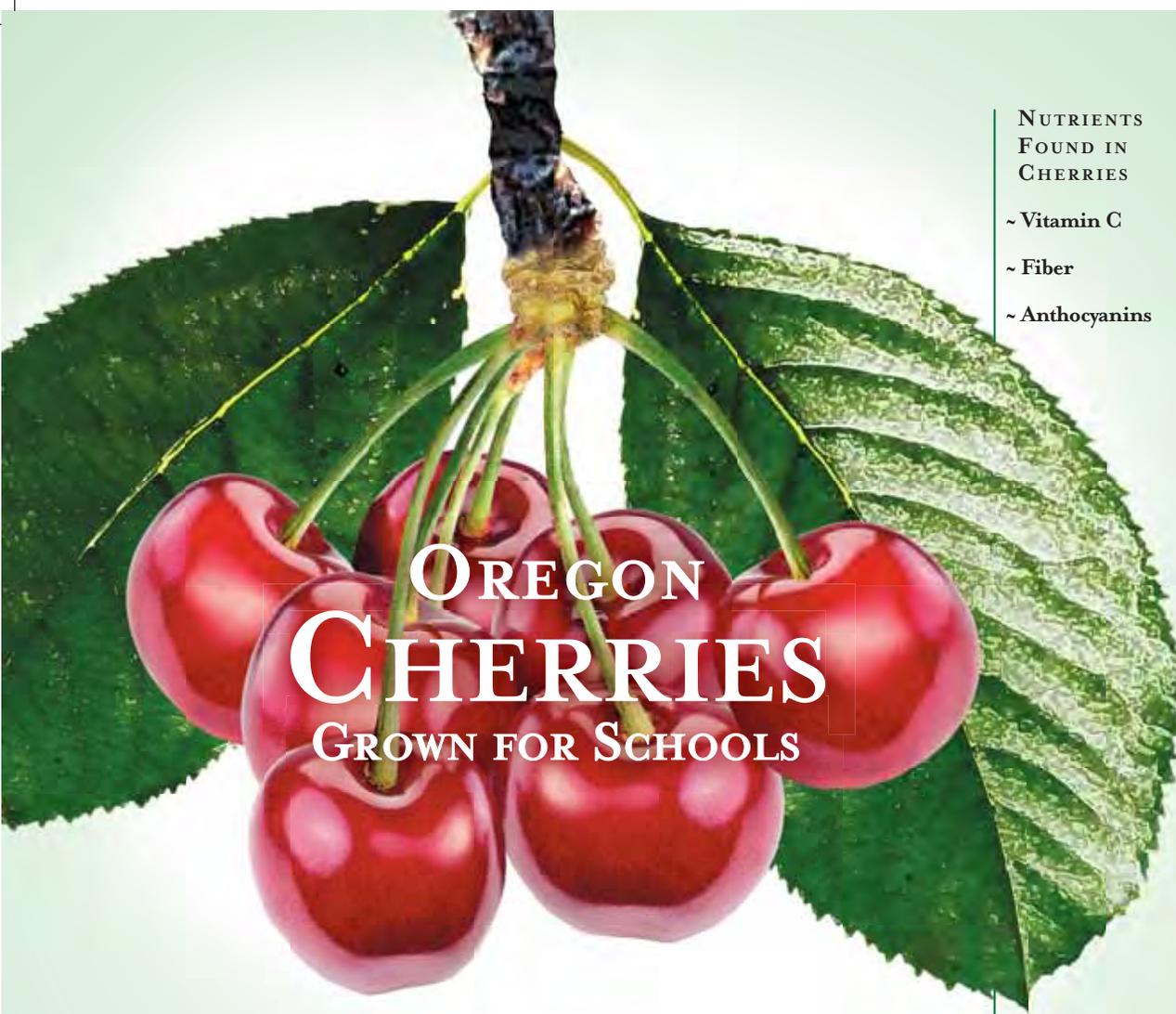
**S18 Oregon School-based Fruit and Vegetable Educational Promotion**  
*Attachment 1: Sample*

NUTRIENTS  
FOUND IN  
CHERRIES

~ Vitamin C

~ Fiber

~ Anthocyanins



# OREGON CHERRIES

GROWN FOR SCHOOLS

- Washington, California and Oregon produce the majority of sweet cherries in the United States.
- Salem became known as the Cherry City at the Cherry Fair held there in July 1907.
- The Bing Cherry variety was developed at the Leweling Nursery in Milwaukie, Oregon, and named in honor of Ah Bing, the Chinese foreman who helped run the nursery.

~ **Anthocyanins** give red, purple, and blue colors to many fruits, vegetables and flowers. They also have important health benefits.

Oregon Cherry Orchard



Cherry trees in bloom on the east side of Mt. Hood.

Rainier Cherries



Rainers are yellow cherries with a red blush.

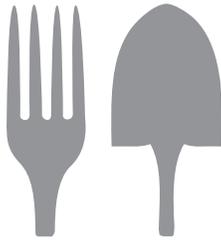
Oregon Bing Cherries



This dark red sweet cherry ripens mid-season.

Oregon Sweet Cherry season starts the first week in June and goes through mid-August. The harvest time depends on the growing region, the variety and the weather.





# OREGON HARVEST for SCHOOLS

## Promoting Oregon Cherries

Let everyone know you serve Oregon fruits and vegetables. Kids are more likely to try Oregon Cherries when you promote them. Read the marketing ideas below and choose one or more that works for your school.

### Menus

Identify the sources of local foods on your menus. Instead of just listing cherries, or even local cherries, include the name of your local orchard on the menu. Use the Oregon Harvest for Schools menu template at [www.ode.state.or.us/search/page/?id=3294](http://www.ode.state.or.us/search/page/?id=3294). The template can also be folded in thirds and used as a table tent.

### Feature Cherries on the Salad Bar

Fresh Oregon Cherries are available at their peak from mid-June to August. Dried Oregon Cherries make great salad toppings and mix well into trail mix and baked goods. Use frozen cherries when fresh are not in season. Freeze cherries with or without stems by rinsing and draining thoroughly, spreading them out in a single layer on a cookie sheet and placing in the freezer overnight.

Once the cherries are frozen, transfer them to a heavy plastic bag. The frozen fruit may be kept up to a year. Kids enjoy eating partially thawed clusters of cherries from the salad bar.

### Salad Bar Signs in English and Spanish

Go to [www.thelunchbox.org/sites/default/files/Salad%20Bar%20Signs.pdf](http://www.thelunchbox.org/sites/default/files/Salad%20Bar%20Signs.pdf) for colorful salad bar signs reminding kids to use a spoon and fork or to eat what they take. The Lunch Box is an online toolkit with Healthy Tools For All Schools. Use any of these free tools to create healthy and delicious food for all children, at every school.

### Oregon Cherry Contest

Host a poster or essay contest about local cherries. Partner with a teacher or a particular grade level. Ask classroom teachers or health teachers to get involved by assigning students an art or essay project with cherries as a theme. Display student posters in the cafeteria or another area of the school. Publish essays in the school newsletter or on the school website.

## Back to Basics: How to Incorporate Scratch Cooking into Your School Kitchen

The Alliance for a Healthier Generation and the National Food Service Management Institute (NFSMI) have partnered to produce a 75-minute webinar on the benefits and challenges of cooking school meals from scratch. Also included is a 30-minute video demonstration of knife skills, sautéing and cooking grains. The webinar, which aired live on November 28, 2011, to 500 participants, is now available in recorded form at [www.healthiergeneration.org/schoolmeals](http://www.healthiergeneration.org/schoolmeals). Please note that a login is required. This process is fast, easy and free, so join up – and enjoy! This webinar is also available on the NFSMI website at [www.nfsmi.org/ResourceOverview.aspx?ID=401](http://www.nfsmi.org/ResourceOverview.aspx?ID=401). You can find the video of the culinary demonstration segment on NFSMI's YouTube channel at [www.youtube.com/user/NFSMIatOleMiss#g/u](http://www.youtube.com/user/NFSMIatOleMiss#g/u).

## Local School Board or Parent Teacher Association

Report your work with local food growers to your school board. Present information about the use of Oregon fruits and vegetables to the PTA or PTO. Share the Oregon Harvest for Schools newsletter and poster at meetings. Invite a local farmer to talk about his farm.

## Oregon Harvest for Schools Classroom Elements

### Elementary School

#### Read A Story

*Harvest Year* by Chris Peterson

A photographic essay of foods that are harvested across the United States.

*Cherries and Cherry Pits* by Vera B. Williams

This book is about a girl with a creative imagination. She tells great stories to her friends that involve cherries and how they bring people together.

*Andy's Cherry Tree* by Miranda Haxhia (author), Zaur Deisadze (illustrator)

Andy's family is moving to a new house. Andy's mother, father, and sister all pack up their favorite things. Andy's favorite thing is the cherry tree in the backyard. He picks some cherries to bring to the new house. When the family eats the cherries for their lunch, his mother has a wonderful idea!

#### Cherry Art Project

Show your students a cluster of Oregon Cherries or use the Oregon Harvest for Schools Cherry poster. Ask questions. Have you ever seen a cherry? What colors are they? What shape are they? How big are they? What do they feel like? Where in Oregon do they come from? Have you ever eaten a cherry? What do they taste like? Write down all of the words that your students use to describe cherries and then ask them to draw their own cherry.

### Middle School

#### Know Your Farmer

In this activity, students research a fruit or vegetable farmer.

#### Materials

State map of Oregon, pins, know your farmer questionnaire, access to the internet, incentive for students.

Begin by asking questions. How many of you know an Oregon farmer? Ask if they know the local farmer that grows their cherries, tomatoes, and pumpkins. Have the students research a local farmer who grows their favorite fruit or vegetable. Ask students to find answers to the following questions while researching their local farmer.

#### Questions:

- What is the name of the farm?
- How many people work on this farm?
- When was the farm established?
- How many miles away from your school is the farm?
- Do they grow anything else besides your favorite fruit or vegetable?
- When is your favorite Oregon grown fruit or vegetable in season?
- Does the farmer sell to a local store, restaurant or farmer's market?

Compile the students' information and pinpoint on a map where the students' favorite fruits and vegetables are grown in Oregon. Encourage students to visit their local farmer at their farm or at the local farmers' market. Recognize students who find answers to all the questions listed above.

### High School

#### "Cherry On Top" Concept Map

Oregon State University's College of Agricultural Sciences developed this Food for Thought curriculum for high school students. This activity has students investigate the Oregon Cherry Industry and is linked to the state's educational benchmarks.

<http://oregonprogress.oregonstate.edu/fall-2009/food-thought-curriculum>



## OREGON CHERRIES GROWN FOR SCHOOLS

### Healthy, Fit and Ready to Learn

- As almost any teacher will tell you, healthy foods and regular physical activity can make a positive difference in the classroom.
- Children are more likely to eat fruit they help prepare. Kids can rinse fresh cherries, dry them and arrange them into a fun design for serving.
- Encourage active play. Take a walk together in the neighborhood.

### Grown In Oregon

- The Oregon sweet cherry season starts the first week in June and can run through mid-August. Cherries from different growing regions and different varieties of cherries ripen at different times. ■ Look for varieties like Chelan, Bing, Benton, Rainier and Sweetheart. Try different varieties and find your own favorites. ■ The Bing Cherry variety was developed at the Leweling Nursery in Milwaukie, Oregon, and named in honor of Ah Bing, the Chinese foreman who helped run the nursery.

### YOUR OREGON KITCHEN

#### Quick and Easy!

- Fun, sweet and flavorful, Oregon Cherries are perfect for snacking right out of hand. Just wash and eat.
- They're great for school lunches and fruit and cheese platters too.
- Add Oregon dried cherries to your breakfast cereal. Pack frozen cherries in school lunch boxes. They'll thaw by lunch time.

#### NUTRIENTS FOUND IN CHERRIES:

Vitamin C  
Fiber  
Anthocyanins

Anthocyanins are antioxidants that give cherries both their rich red color and important health benefits.

### Fresh Northwest Cherry Salsa

Makes 4 half cup servings.

#### INGREDIENTS

- 2 cups pitted fresh or frozen sweet cherries
- 1/3 cup Basil, fresh, chopped
- 1/3 cup green peppers, finely chopped
- 2 tsp lemon juice
- 1/2 tsp each of: Worcestershire sauce and grated lemon peel
- 1/4 tsp Salt

Dash of bottled hot pepper sauce

#### DIRECTIONS

Chop cherries. Combine all ingredients; mix well. Refrigerate at least 1 hour.

#### NUTRITIONAL ANALYSIS

Calories 124, Protein 0g, Fat 0g, Calories From Fat 2%, Cholesterol 0mg, Fiber 5g, Sodium 168mg.

### RECOMMENDED DAILY AMOUNTS OF FRUITS AND VEGETABLES\*

	Kids - ages 5-12	Teens & Adults - age 13+
Males	2 ½ – 5 cups per day	4 ½ – 6 ½ cups per day
Females	2 ½ – 5 cups per day	3 ½ – 5 cups per day

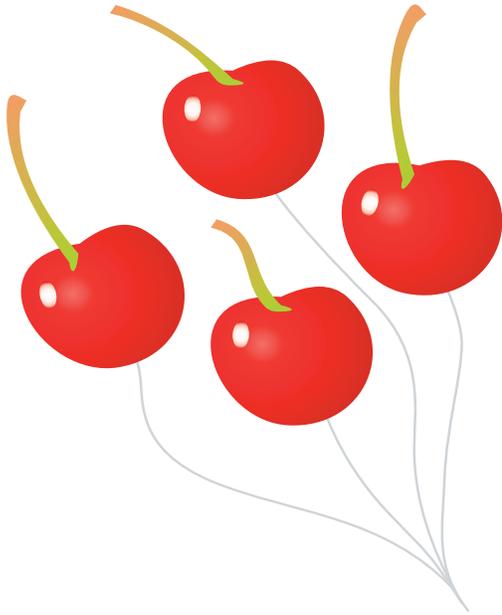
\*If you are active, eat the higher number of cups per day. Visit [www.choosemyplate.gov](http://www.choosemyplate.gov) to learn more.

Source: Produce for Better Health



**FIND OUT MORE:** Visit the Oregon Department of Education Child Nutrition Programs web page at [www.ode.state.or.us/services/nutrition](http://www.ode.state.or.us/services/nutrition). Find the link to Oregon Farm To School and School Garden Program under Associated Topics.

## Just for Kids



### Cherry Toss

Play an active game using red balloons or balls. Call them cherries. Have a contest to see who can keep a cherry balloon in the air the longest using only their head. Kids can try to throw a cherry ball into the air, turn around and catch it again. Or have kids throw the cherry ball into the air, clap their hands once, and catch it. Then try clapping hands twice and then three times. How high can they go?

### Planet Power

Try an online spaceship adventure called Planet Power. Children play this online game by fueling their rocket with food and physical activity. Each child makes food and activity choices, then clicks “Blast Off” to see if they have what it takes to make it to Planet Power.



Play at [www.fns.usda.gov/multimedia/Games/Blastoff/BlastOff\\_Game.html](http://www.fns.usda.gov/multimedia/Games/Blastoff/BlastOff_Game.html)



Have fun! Yes, children need to be active every day, but kids can choose all kinds of activities to meet this goal – playing with the family or friends, walking to school or the store, bicycling, tossing or bouncing a ball, and more – all while fueling their bodies with nutritious foods.

Find more ideas at [www.presidentschallenge.org/challenge/activities.shtml](http://www.presidentschallenge.org/challenge/activities.shtml)

## PRODUCE POINTERS



### Cherries

- Choose firm, plump, shiny cherries with stems on. Cherries keep better with stems on. Avoid cherries that are soft or have brown spots.
- Refrigerate your unwashed cherries immediately after purchase. Cherries will keep in the refrigerator for several days. Wash the fruit before eating.
- You can freeze cherries by rinsing and draining thoroughly, spreading out in a single layer on a cookie sheet and placing in the freezer overnight. Once cherries are frozen, transfer them to a heavy plastic freezer bag.

### Living and Eating Green

Make your own snack mixes from dry whole-grain cereal, dried cherries or other dried fruit, and unsalted nuts or seeds. Provide the ingredients and allow kids to choose what they want in their “new” snack. You will use less packaging and save money.



## CEREZAS DE OREGÓN CULTIVADAS PARA ESCUELAS

### Saludable, en buen estado físico y listo para aprender

- Como casi todos los maestros le dirán, una alimentación saludable y la actividad física regular pueden hacer una diferencia positiva en el aula.
- Es más probable que los niños coman las frutas que ayudan a preparar. Los niños pueden enjuagar las cerezas frescas, secarlas y disponerlas en un diseño divertido para servirlos.
- Aliente el juego activo. Salgan a caminar juntos por el vecindario.

### Cultivadas en Oregón

- La estación de las cerezas dulces de Oregón comienza la primera semana de junio y puede durar hasta mediados de agosto. Las cerezas de variedades distintas, y que se cultivan en regiones distintas, maduran en momentos distintos. ■ Busque variedades tales como Chelan, Bing, Benton, Rainier y Sweetheart. Pruebe distintas variedades y encuentre sus favoritas. ■ La variedad de cereza Bing fue desarrollada en el vivero Leweling en Milwaukie, Oregón, y nombrada en honor de Ah Bing, el capataz chino que ayudó a operar el vivero.

#### NUTRIENTES QUE CONTIENEN LAS CEREZAS:

- ~ Vitamina C
- ~ Fibra
- ~ Antocianinas
- ~ Las antocianinas son antioxidantes responsables del intenso color rojo de las cerezas y de beneficios importantes para la salud.

#### LA COCINA DE OREGÓN

### ¡Rápida y fácil!!

- Divertidas, dulces y gustosas, las cerezas de Oregón son perfectas para comer como bocadillos, directamente de la mano. Simplemente, lávelas y cómalas.
- Son excelentes para los almuerzos escolares y también para los platos de fruta y queso.
- Añada cerezas secas de Oregón al cereal del desayuno. Coloque cerezas congeladas en el portaviandas para la escuela. Estarán descongeladas para la hora del almuerzo.

### Salsa de cerezas frescas del noroeste

Rinde 4 porciones de media taza cada una

#### INGREDIENTES

- 2 tazas de cerezas dulces frescas o congeladas, descarozadas
- 1/3 taza de albaca fresca, picada
- 1/3 taza de ajíes dulces verdes, finamente picados
- 2 cucharaditas de jugo de limón
- 1/2 cucharadita de cada uno de los siguientes: Salsa Worcestershire y cáscara de limón rallada
- 1/4 cucharadita de sal
- Pizca de salsa de chile picantes de botella

#### INSTRUCCIONES

Picar las cerezas. Combinar todos los ingredientes; mezclar bien. Refrigerar durante al menos 1 hora.

#### ANÁLISIS NUTRICIONAL

Calorías 124, Proteínas 0 g, Grasa 0 g, Calorías de grasa 2%, Colesterol 0 mg, Fibra 5 g, Sodio 168 mg.

### CANTIDADES DIARIAS RECOMENDADAS DE FRUTAS Y VERDURAS

	Niños de 5-12 años	Adolescentes y adultos de 13 años y más
Varones	2 ½ – 5 tazas por día	4 ½ – 6 ½ tazas por día
Mujeres	2 ½ – 5 tazas por día	3 ½ – 5 tazas por día

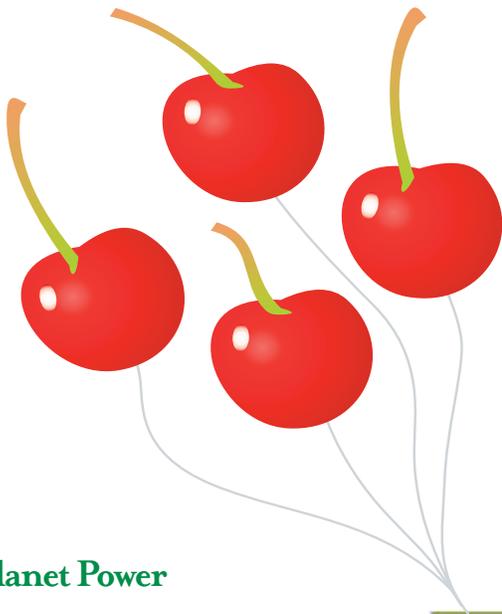
Si hace una vida activa, coma la cantidad más grande de tazas por día. Visite [choosemyplate.gov](http://choosemyplate.gov) para obtener más información.

Fuente: Produce for Better Health



**OBTENGA MAS INFORMACIÓN:** Visite los Programas de nutrición de niños del Departamento de Educación de Oregón en [www.ode.state.or.us/services/nutrition](http://www.ode.state.or.us/services/nutrition). Busque el enlace al Programa de Oregón “De la granja a la escuela y al jardín escolar” (Oregon Farm To School and School Garden Program) bajo los temas asociados.

## Especialmente para niños



### Lanzamiento de cerezas

Juegue un juego activo con globos o pelotas rojas. Llámelos cerezas. Haga una competencia para ver quién puede mantener un globo cereza más tiempo en el aire usando únicamente la cabeza. Los niños pueden tratar de arrojar una pelota cereza al aire, dar una vuelta y agarrarla nuevamente. O haga que los niños arrojen la pelota cereza al aire, aplaudan una vez y la agarren. Luego pruebe a que aplaudan dos veces y luego tres veces. ¿Qué tan alto pueden llegar?

### Planet Power

Pruebe una aventura espacial en línea llamada Planet Power. Los niños juegan este juego en línea cargando su cohete con comida y actividad física como combustible. Cada niño elige alimentos y actividades, luego hace clic en “Blast Off” (Despegue) para ver si tiene lo que necesita para llegar a Planet Power.



Juegue en [www.fns.usda.gov/multimedia/Games/Blastoff/BlastOff\\_Game.html](http://www.fns.usda.gov/multimedia/Games/Blastoff/BlastOff_Game.html)



¡Diviértase! Sí, es necesario que los niños estén activos todos los días, pero pueden elegir distintos tipos de actividades para lograrlo, como jugar con la familia o amigos, ir a la escuela o a la tienda caminando, andar en bicicleta, arrojar o hacer picar una pelota y más, todo mientras alimentan sus cuerpos con alimentos nutritivos.

Encuentre más ideas en [www.presidentschallenge.org/challenge/activities.shtml](http://www.presidentschallenge.org/challenge/activities.shtml)

### SUGERENCIAS



### Cerezas

- Elija cerezas firmes, carnosas y brillantes con cabitos. Las cerezas se mantienen mejor si tienen los cabitos. Evite las cerezas blandas o con manchas marrones.
- Refrigere las cerezas no lavadas inmediatamente después de comprarlas. Las cerezas se mantendrán en el refrigerador por varios días. Lave la fruta antes de comerla.
- Puede congelar cerezas enjuagándolas y escurriéndolas bien, desparramándolas en una sola capa sobre una bandeja para hornear galletas y dejándolas en el congelador toda la noche. Una vez que las cerezas estén congeladas, transfíralas a una bolsa de plástico grueso para congelador.

### Vivir y comer verde

Haga sus propias mezclas de bocadillos con cereal integral seco, cerezas secas u otra fruta seca, y nueces o semillas sin sal. Proporcione los ingredientes y permita que los niños elijan lo que quieren en su “nuevo” bocadillo. Usará menos envases y ahorrará dinero.

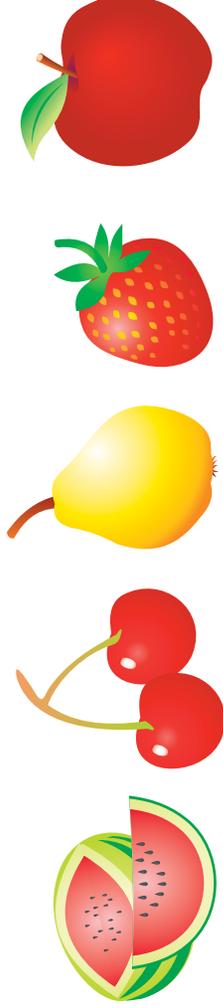


## PICK AN OREGON CHERRY

### HARVEST BITES

- Circle all the cherries on the menu.
- How many did you find?
- What is your favorite way to eat Oregon cherries?

## Just for Kids



**Can you name the fruits?** They all grow in Oregon. Give them a try.

- 1.** I grow on trees in clusters of red fruits or yellow fruits with a red blush. What fruit am I?
- 2.** I am Oregon's #1 tree fruit crop and Oregon's state fruit. What fruit am I?
- 3.** I am a bright red fruit with seeds on the outside. Toss me with spinach leaves for a yummy spring salad. What fruit am I?
- 4.** I am a tree fruit grown all over Oregon. My fruit ripens from July through November, but I store so well you can eat my fresh fruit year round. What fruit am I?
- 5.** I am about 90% water. Sometimes I have seeds and sometimes I am seedless. Hermiston is famous for growing me. What fruit am I?

(Answers: 1. Cherry 2. Pear 3. Strawberry 4. Apple 5. Watermelon)

### RECOMMENDED DAILY AMOUNTS OF FRUITS AND VEGETABLES\*

#### Kids - ages 5-12 Teens & Adults - age 13+

Males	2 ½ – 5 cups per day	4 ½ -6 ½ cups per day
Females	2 ½ – 5 cups per day	3 ½ – 5 cups per day

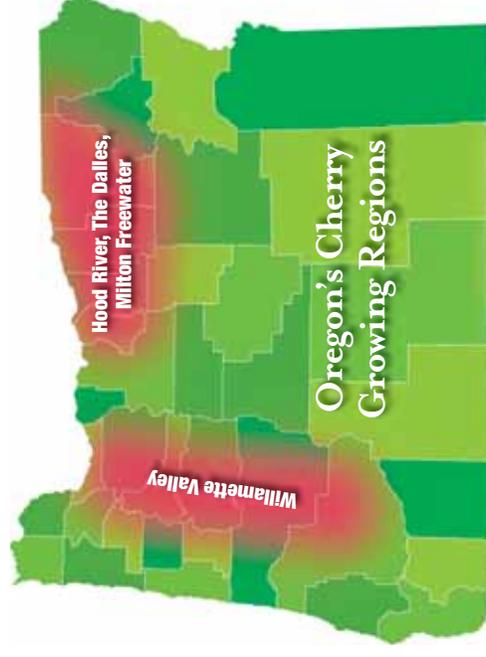
\*If you are active, eat the higher number of cups per day. Visit [www.choosemyplate.gov](http://www.choosemyplate.gov) to learn more.

Visit the Oregon Department of Education Child Nutrition Programs webpage at [www.ode.state.or.us/services/nutrition](http://www.ode.state.or.us/services/nutrition).

Find the link to Oregon Farm to School and School Garden Program under Associated Topics.

## Grown In Oregon

The Oregon sweet cherry season starts the first week in June and can run through mid-August. Cherries in different growing regions ripen at different times.



## Healthy, Fit and Ready to Learn

- Make fruit your everyday dessert. Rinse fresh cherries, pat dry and arrange in a fun design for serving. ■ Frozen fruit is a great option too. Partially-thawed cherries are a tasty treat any time of day.



**OREGON**  
**HARVEST**  
*for*  
**SCHOOLS**



## PROMOTING OREGON CHERRIES

Let everyone know you serve Oregon fruits and vegetables. Kids are more likely to try Oregon Cherries when you promote them. Read the marketing ideas below and choose one or more that works for your school.

### Menus

Identify the sources of local foods on your menus. Instead of just listing cherries, or even local cherries, include the name of your local orchard on the menu. Use the Oregon Harvest for Schools menu template at [www.ode.state.or.us/search/page/?id=3294](http://www.ode.state.or.us/search/page/?id=3294). The template can also be folded in thirds and used as a table tent.

### Feature Cherries on the Salad Bar

Fresh Oregon Cherries are available at their peak from mid-June to August. Dried Oregon Cherries make great salad toppings and mix well into trail mix and baked goods. Use frozen cherries when fresh are not in season. Freeze cherries with or without stems by rinsing and draining thoroughly, spreading them out in a single layer on a cookie sheet and placing in the freezer overnight.

Once the cherries are frozen, transfer them to a heavy plastic bag. The frozen fruit may be kept up to a year. Kids enjoy eating partially thawed clusters of cherries from the salad bar.

### Salad Bar Signs in English and Spanish

Go to [www.thelunchbox.org/sites/default/files/Salad%20Bar%20Signs.pdf](http://www.thelunchbox.org/sites/default/files/Salad%20Bar%20Signs.pdf) for colorful salad bar signs reminding kids to use a spoon and fork or to eat what they take. The Lunch Box is an online toolkit with Healthy Tools For All Schools. Use any of these free tools to create healthy and delicious food for all children, at every school.

### Oregon Cherry Contest

Host a poster or essay contest about local cherries. Partner with a teacher or a particular grade level. Ask classroom teachers or health teachers to get involved by assigning students an art or essay project with cherries as a theme. Display student posters in the cafeteria or another area of the school. Publish essays in the school newsletter or on the school website.

## **Back to Basics: How to Incorporate Scratch Cooking into Your School Kitchen**

The Alliance for a Healthier Generation and the National Food Service Management Institute (NFSMI) have partnered to produce a 75-minute webinar on the benefits and challenges of cooking school meals from scratch. Also included is a 30-minute video demonstration of knife skills, sautéing and cooking grains. The webinar, which aired live on November 28, 2011, to 500 participants, is now available in recorded form at [www.healthiergeneration.org/schoolmeals](http://www.healthiergeneration.org/schoolmeals). Please note that a login is required. This process is fast, easy and free, so join up – and enjoy! This webinar is also available on the NFSMI website at [www.nfsmi.org/ResourceOverview.aspx?ID=401](http://www.nfsmi.org/ResourceOverview.aspx?ID=401).

You can find the video of the culinary demonstration segment on NFSMI's YouTube channel at [www.youtube.com/user/NFSMIatOleMiss#g/u](http://www.youtube.com/user/NFSMIatOleMiss#g/u).

### **Local School Board or Parent Teacher Association**

Report your work with local food growers to your school board. Present information about the use of Oregon fruits and vegetables to the PTA or PTO. Share the Oregon Harvest for Schools newsletter and poster at meetings. Invite a local farmer to talk about his farm.

## **OREGON HARVEST FOR SCHOOLS CLASSROOM ELEMENTS**

### **ELEMENTARY SCHOOL**

#### **Read A Story**

*Harvest Year* by Chris Peterson

A photographic essay of foods that are harvested across the United States.

*Cherries and Cherry Pits* by Vera B. Williams

This book is about a girl with a creative imagination. She tells great stories to her friends that involve cherries and how they bring people together.

*Andy's Cherry Tree* by Miranda Haxhia (author), Zaur Deisadze (illustrator)

Andy's family is moving to a new house. Andy's mother, father, and sister all pack up their favorite things. Andy's favorite thing is the cherry tree in the backyard. He picks some cherries to bring to the new house. When the family eats the cherries for their lunch, his mother has a wonderful idea!

#### **Cherry Art Project**

Show your students a cluster of Oregon Cherries or use the Oregon Harvest for Schools Cherry poster. Ask questions. Have you ever seen a cherry? What colors are they? What shape are they? How big are they? What do they feel like? Where in Oregon do they come from? Have you ever eaten a cherry? What do they taste like? Write down all of the words that your students use to describe cherries and then ask them to draw their own cherry.

## MIDDLE SCHOOL

### **Know Your Farmer**

In this activity, students research a fruit or vegetable farmer.

### **Materials**

State map of Oregon, pins, know your farmer questionnaire, access to the internet, incentive for students.

Begin by asking questions. How many of you know an Oregon farmer? Ask if they know the local farmer that grows their cherries, tomatoes, and pumpkins. Have the students research a local farmer who grows their favorite fruit or vegetable. Ask students to find answers to the following questions while researching their local farmer.

### **Questions:**

What is the name of the farm?

How many people work on this farm?

When was the farm established?

How many miles away from your school is the farm?

Do they grow anything else besides your favorite fruit or vegetable?

When is your favorite Oregon grown fruit or vegetable in season?

Does the farmer sell to a local store, restaurant or farmer's market?

Compile the students' information and pinpoint on a map where the students' favorite fruits and vegetables are grown in Oregon. Encourage students to visit their local farmer at their farm or at the local farmers' market. Recognize students who find answers to all the questions listed above.

## HIGH SCHOOL

### **“Cherry On Top” Concept Map**

Oregon State University's College of Agricultural Sciences developed this Food for Thought curriculum for high school students. This activity has students investigate the Oregon Cherry Industry and is linked to the state's educational benchmarks.

<http://oregonprogress.oregonstate.edu/fall-2009/food-thought-curriculum>

**S19 Marketing Integrated Pest Management (IPM) and Sustainable Production:  
Developing and Accessing Value-Added Markets for Pacific Northwest Hops with the  
Oregon Hop Commission**

*Appendix A:* OHC Brewery Targets from the Top 50 U.S. Craft Breweries

*Appendix B:* CBC 2011 - Seminar Proposal Form

*Appendix C:* Craft Brewers Pre-Harvest Hop Tour

*Appendix D:* Email's received directly after the tour

*Appendix E:* Hop Disease Management and Food Alliance Certification Workshop

Agenda

**APPENDIX A****OHC Brewery Targets from the Top 50 U.S. Craft Breweries (as of Dec 16, 2010)  
(Selections based on higher than average usage of European hops)**

	<b>Brewing Company</b>	<b>City/State</b>	<b>Size Ranking*</b>
1	Boston Beer Co.	Boston MA	1
2	Spoetzl Brewery	Shiner TX	4
3	Matt Brewing Co.	Utica NY	7
4	Magic Hat Brewing Co.	Burlington VT	8
5	Boulevard Brewing Co.	Kansas City MO	9
6	Harpoon Brewery	Boston MA	10
7	Alaskan Brewing Co.	Juneau AK	11
8	Bell's Brewery, Inc.	Galesburg, MI	12
9	The Brooklyn Brewery	Brooklyn NY	17
10	Abita Brewing Co.	Abita Springs LA	18
11	Summit Brewing Co.	Saint Paul MN	19
12	Shipyard Brewery	Portland ME	21
13	New Glarus Brewing Co.	New Glarus WI	22
14	Great Lakes Brewing Co.	Cleveland OH	23
15	The Lagunitas Brewing Co.	Petaluma CA	26
16	Gordon Biersch Brewing Co.	San Jose CA	27
17	Victory Brewing Co.	Downingtown PA	30
18	Flying Dog Brewing Co.	Frederick MD	31
19	BJ's Restaurant & Brewery	Huntington Beach CA	32
20	Big Sky Brewing Co.	Missoula MT	37
21	Stevens Point Brewing Co.	Stevens Point WI	38
22	Karl Strauss Brewing Co.	San Diego CA	40
23	The Saint Louis Brewery	St. Louis MO	41
24	Gordon Biersch Brewery Restaurants	Chattanooga TN	43
25	Breckenridge Brewery	Denver CO	46
26	Utah Brewers Cooperative	Salt Lake City UT	47
27-30	Craft Brewers Alliance (Widmer, Redhook, Goose Island, Kona)	Portland OR	N/A**

\*Rankings are from the Brewers Association's list of Top 50 craft breweries by 2009 sales volume (<http://www.brewersassociation.org/pages/media/press-releases/show?title=brewers-association-releases-2009-top-50-breweries-list>)

\*\*Due to the "non-independent" nature of the four breweries that make up the Craft Brewers Alliance, they are not featured on the BA's Top 50 list, however these four breweries are considered brewery targets in this effort.

## **APPENDIX B**

CBC 2011 - Seminar Proposal Form

### **Name of Presenter(s)**

Oregon Hop Commission

### **Have you presented at the Craft Brewers Conference before?**

No

### **Brief Presenter Bio(s)**

The Oregon Hop Commission (OHC) is a Commodity Commission of the State of Oregon. Its function is to provide for research to maintain the economic stability of hop production through assessments paid by all Oregon hop growers. The OHC currently consists of 35 hop growing business entities from 24 families, and is governed by a board of seven growers, one dealer/handler, and one public member to facilitate the business of the commission. The OHC was recently awarded a grant by the Oregon Department of Agriculture to help promote the use of American hops by US craft brewers. If selected by the BA, the OHC would present this seminar on behalf of hop growers in Oregon, Washington, and Idaho. These three states make up 100% of commercial hop production in the US and approximately 35% of the world's hop production. While the OHC will be the sponsor and organizer of this proposed seminar, the actual presentation will be given by a panel of brewing and hop industry experts recruited by the OHC. The panel will include a craft brewer, a hop grower, a hop merchant, and up to two other specialists in the field. The OHC has already had discussions with prospective panelists regarding their participation, including Matt Brynildson (Brewmaster at Firestone Walker Brewing Co., Ralph Olson (owner and former GM of Hopunion CBS, LLC.), Karl Ockert (Technical Director of the Master Brewers Association of America), and Val Peacock (President of Hop Solutions Inc. and former Hop Technology Manager at Anheuser Busch). After preliminary discussions, each of these individuals has signaled interest in participating on the OHC panel. If any of these candidates ultimately do not join the OHC presentation, an alternative of equal caliber will be selected.

### **Contact Address**

Michael Schadler

Bryant Christie Inc.

(On behalf of the Oregon Hop Commission)

500 Union St., Suite 701

Seattle, WA 98101

### **Contact Email**

[michaels@bryantchristie.com](mailto:michaels@bryantchristie.com)

### **Contact Phone**

206-292-6340

### **Additional Contact Information**

Though Bryant Christie Inc. is managing this project for the OHC, you should feel free to contact the OHC directly. Nancy Frketich is the Administrator of the OHC. Her contact information is:

Oregon Hop Commission

PO Box 298

Hubbard, OR 97032

(503) 982-7600

[nancy@oregonhops.org](mailto:nancy@oregonhops.org)

## **Proposed Seminar Title**

The case for using American hops – varietal diversity, sustainability, locally grown

## **Who's the Target Audience?**

Brewmasters, R&D personnel, marketing managers, and ingredient procurement staff from US craft breweries.

## **Please provide a 4 sentence description of the talk.**

*(If your proposal is approved, it is likely that this description will be used in Conference media promoting your talk).*

A panel of hop and brewing industry experts will focus on the following two themes: 1) US substitutes for commonly used European hop varieties, and 2) Sustainability and the Buy Local consumer movement – how to leverage American-grown hops in marketing your beer. Case studies on these topics will be shared by the panel. There will also be a tasting of commercially brewed and pilot brewed beers that exemplify the substitution of American hops for European varieties.

## **Please provide 3 paragraphs or an outline of what topics will be covered in the presentation.**

I. Welcome and brief overview of the presentation themes/objectives

II. Introduction of panelists

III. US substitutes for commonly used European hop varieties

a. Past, present, and future of breeding and/or growing European noble-style varieties in the US

i. What was and is the motivation for this effort?

ii. How has this succeeded?

iii. How has this failed?

iv. What are the challenges?

v. How could this effort be strengthened?

vi. Should it even be strengthened?

vii. What are the marketing prospects domestically and internationally for these varieties?

b. Substituting hop varieties

i. What are the most common substitutes?

1. Brewery case studies

2. Beer tasting of various examples

ii. Less common, but still effective substitutes:

1. Pilot-brewed beer tastings

iii. What are the challenges and opportunities for growers, merchants, and brewers in advancing this effort?

IV. Sustainability and the Buy Local consumer movement – how to leverage American hops in marketing your beer

a. Case studies on the hop industry's movement towards more sustainable farming

i. Integrated Pest Management (IPM) in hop farming

ii. Salmon Safe and other grower certification programs

iii. TBD

- b. Case studies in Buy Local marketing
  - i. How US grown hops as a key ingredient in beer can ad consumer appeal and sales for craft beer
  - ii. How the family farming heritage of US hop growers can be connected with craft beer consumers to enhance interest and sales
- V. Final audience questions and closing

## APPENDIX C



### Craft Brewers Pre-Harvest Hop Tour July 25-28, 2011

#### *Staff / Tour Guides:*

Nancy Frketich Schadler Oregon Hop Commission Christie Inc. Office: (503) 982-7600 Office: (206) 292-6340 Cell: (503) 871-1506 <a href="mailto:nancy@oregonhops.org">nancy@oregonhops.org</a> <a href="mailto:michaels@bryantchristie.com">michaels@bryantchristie.com</a>	Ann George Washington Hop Commission Office: (509) 453-4749 Cell: (509) 930-2334 <a href="mailto:ageorge@wahops.org">ageorge@wahops.org</a>	Michael Bryant Cell: (425) 221-9946
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#### *Guests:*

Louis, MO	Gary Briggs The Saint Louis Brewery (Schlafly Beer)	Saint
	John Callahan D.G. Yuengling & Son, Inc.	Pottsville, PA
	Jeff Eaton Trumer Brauerei	Berkeley, CA
TX	Jim Hackbarth The Gambrinus Company	San Antonio,
	Mark Hunger Great Lakes Brewing Co.	Cleveland, OH
	Rebecca Newman Boston Beer Co.	Boston, MA
	Nick Vickery The Saint Louis Brewery (Schlafly Beer)	Saint
Louis, MO		

#### *Hotels:*

##### Yakima

Holiday Inn Downtown Yakima  
802 East Yakima Avenue  
Yakima, Washington 98901  
Phone: +1 509 494-7000  
<http://www.holidayinn.com/hotels/us/en/yakima/ykmyw/hoteldetail>

Portland

Portland Marriott City Center  
520 Southwest Broadway  
Portland, Oregon 97205  
Phone: +1 503 226-6300  
[www.marriottportland.com](http://www.marriottportland.com)

***Schedule:***

***Monday, July 25 (Yakima)***

- 6:45 PM Meet in hotel lobby for introductions. Board bus to go to restaurant.
- 7:00 PM Dinner at Birchfield Manor ([www.birchfieldmanor.com](http://www.birchfieldmanor.com)) with hop merchant representatives and local hop growers.**

***Tuesday, July 26 (Yakima Valley)***

Morning Breakfast on your own (upon checking in to the hotel, you will be provided with breakfast vouchers for each morning)

7:45 AM Board bus outside hotel lobby

**8:00 AM S. S. Steiner Inc. ([www.hopsteiner.com](http://www.hopsteiner.com)) – Yakima, WA**

*Established in 1845 as a small hop trading firm in Laupheim, Germany, S. S. Steiner is now one of the largest hop growing, trading and processing firms in the world. S. S. Steiner is headquartered New York City and maintains operations in Yakima, Germany, and China. It also has offices and personnel in Oregon, England, and the Czech Republic. Our tour with Steiner will begin at their warehouse complex where we will see how bales are received and inspected. We will also take a tour of the pellet plant and receive a presentation on Advanced Crop Improvement and hop breeding.*

**11:15 AM Roy Farms – Moxee, WA**

*Roy Farms is a family-owned diversified farming operation that provides many agricultural based products and services. Roy Farms endeavors to be on the cutting edge of farming technology and*

*operations. The Roy's grow many different aroma, bittering, and super alpha varieties, including organic hops. The tour will be led by Michael Roy, Hop Division Director, and Jim Boyd, Production Manager. We will also have lunch while at Roy Farms – sandwiches, chips, and salad.*

**Brewers Supply Group ([www.brewerssupplygroup.com](http://www.brewerssupplygroup.com)) – Moxee, WA**

*During the Roy Farms stop, we'll also meet with Sean McGree, Sales Manager for the Hops Division at Brewers Supply Group. BSG offers a wide range of domestic and imported hops. It pelletizes and stores its hops at Roy Farms.*

**2:15 PM Hopunion LLC ([www.hopunion.com](http://www.hopunion.com)) – Yakima, WA**

*Hopunion LLC is a grower owned, vertically integrated hop supplier, that grows, processes, and stores hops—concentrating solely on the craft beer sector. Hopunion operates five cold storage warehouses totaling 62,000 square feet and a large pellet processing plant. We'll receive a tour of these facilities, including Hopunion's new lab, selection room, and pilot brewhouse.*

**4:15 PM BT Loftus Ranches – Yakima, WA**

*Our Hopunion hosts will then take us to BT Loftus Ranches, owned by Mike Smith and his family. The Smith's are one of Hopunion's grower/owners and are also involved with Select Botanicals and the Hop Breeding Company. We'll receive a tour of their state-of-the-art harvesting facilities and have the chance to see each of the different hop varieties grown by Hopunion growers (side by side) on the hop observation deck. We will then be treated to a Mexican dinner at the farm.*

**Wednesday, July 27 (Yakima – Hood River – Portland)**

Morning Breakfast on your own (upon checking in to the hotel, you will be provided with breakfast vouchers for each morning)

8:15 AM Check out of hotel and board bus

**9:45 AM Stonehenge Memorial ([www.maryhillmuseum.org/stonehenge](http://www.maryhillmuseum.org/stonehenge)) – Maryhill, WA**

*As the tour travels to Oregon we will make one last stop in Washington at a full-size replica of Stonehenge, which is set on a majestic cliff overlooking the Columbia River. It was built as a memorial to those who died in World War I. On a clear day, you can enjoy a panoramic vista of the Columbia River Gorge with views of Mt. Hood, Mt. St. Helens, and Mt Adams.*

**OR**      **11:15 AM**      **Full Sail Brewing Co. ([www.fullsailbrewing.com](http://www.fullsailbrewing.com)) – Hood River,**

*Founded in 1987, Full Sail was one of Oregon's first microbreweries and today is the 18th largest craft brewery in the US. Their first packaged beer was Full Sail Golden Ale, followed in 1988 by Full Sail Imperial Porter, Full Sail Amber Ale, and Wassail Winter Ale. Full Sail is also increasingly known for its lagers—most notably the Session and Session Black brands, but also the LTD 03, 04, and 05 seasonal lagers. Full Sail also contract brews a number of different brands for SABMiller. Full Sail's Executive Brewmaster, James Emmerson, will provide us with a tour and tasting at the brewery, prior to eating lunch in the Full Sail pub overlooking the Columbia River.*

2:15 PM      Depart Hood River for Portland

3:45 PM      Check in to hotel

4:45 PM      Board bus outside hotel lobby

**5:00 PM**      **Oregon Brewers Festival ([www.oregonbrewfest.com](http://www.oregonbrewfest.com)) – Brewers Dinner**

*This is a kick-off dinner for the annual Oregon Brewers Festival, which starts on Thursday in downtown Portland along the banks of the Willamette River. The dinner will bring together brewers who are participating in the festival as well as member breweries of the Oregon Brewers Guild. In addition to dinner, they will be serving approximately 24 different beers that were brewed and donated by the brewery members of the Oregon Brewers Guild.*

**Thursday, July 28 (Portland – Willamette Valley)**

Morning      Breakfast on your own (upon checking in to the hotel, you will be provided with breakfast vouchers for each morning)

9:00 AM      Board bus outside hotel lobby to depart for the Willamette Valley

- 10:00 AM**      **John I. Haas Inc. Cold Storage Warehouse**  
**([www.barthhaasgroup.com](http://www.barthhaasgroup.com)) – Hubbard, OR**  
*This is one of the primary warehouses where Oregon growers deliver their hops for storage following harvest. Participants will gain a better understanding of cold storage practices and quality inspections. John I. Haas is part of the Barth Haas Group, which is the world's largest hop supplier with offices and operations in the U.S., Germany, England, Australia, and China.*
- 11:00 AM**      **Stauffer Farms – Hubbard, OR**  
*The Stauffer family ancestors came over the Oregon Trail by wagon train and settled on this property in 1852. On the farm they still have the original three story log house that the settlers lived in. This log house is now being restored by the Aurora historical society. Currently Stauffer Farms raises Willamette, Tett nang, Super Galena and Nugget hop varieties.*
- This stop will include a tour of the farm and a presentation on sustainable hop growing practices by Dave Gent, a USDA research scientist that works closely with the hop industry. Following the tour and presentation, we will have lunch at the farm.*
- 1:00 PM      Board bus and depart for Independence, OR
- 2:30 PM**      **Rogue Hop Farm / Tasting Room**  
**(<http://www.rogue.com/almanac/chatoe.php>) – Independence, OR**  
*The “Rogue Nation's Department of Agriculture” has a strategic alliance with the Coleman family, heritage hop growers in the Willamette valley. The Rogue Hopyard sits right next to the Willamette River, just south of the once hop capital of the world, Independence, Oregon. The first commercial hop yard in Oregon was planted near here in 1867. Rogue has seven varieties and 42 acres of aroma hops.. The “Chatoe Rogue Tasting Room” is right next door, which will allow our group to have a chance to sample some Rogue Ales.*
- 4:00 PM      Depart Rogue for Annen Bros., Inc. Farm
- 5:30 PM**      **Annen Bros., Inc. Farm – Mt. Angel, OR**  
*Farm tour and dinner. Annen Brothers is one of the few farms in the U.S. that has dedicated its entire operation to the production of hops. John Annen is a fourth generation hop grower and he along with his family will host the group at their home surrounded by hop fields.*

8:00 PM      Return to Portland

***Friday, July 28 (Portland)***

End of tour: Return home or stay on your own and enjoy the Oregon Brewers Festival ([www.oregonbrewfest.com](http://www.oregonbrewfest.com))

## APPENDIX D

Email's received directly after the tour:

-----Original Message-----

From: Newman, Rebecca [mailto:Rebecca.Newman@bostonbeer.com]

Sent: Friday, August 05, 2011 8:59 AM

To: Michael Schadler

Cc: nancy@oregonhops.com

Subject: RE: Craft Brewers Pre-Harvest Hop Tour

Michael,

Again, thanks so much for the week. It was enlightening and helpful, and I will be able to provide Boston Beer, Samuel Adams updated and impactful information related to Oregon hops.

You and Nancy did a super job providing a lifetime experience to a group not so familiar w/ OR hops. WELL DONE YOU! From start to finish it was well done!!

If I can assist with anything in future, please reach out.

Rebecca

---

**From:** Mark Hunger [mailto:markh@greatlakesbrewing.com]

**Sent:** Wednesday, August 03, 2011 10:52 AM

**To:** Michael Schadler

**Subject:** RE: Craft Brewers Pre-Harvest Hop Tour

Thanks a lot for the great trip!! You guys did a great job and treated us like royalty. Thanks again. I feel more connected to the hop industry now than I have ever been. I appreciate it!

**Nancy's original follow up survey email to tour participants in black, response from participant inserted in blue below.**

---

Dear James,

It was a pleasure to meet you in July and to have the opportunity to host you on a tour of the US hop growing region. We sincerely appreciate you taking the time out of your schedule to learn more about American hops. I hope it was a valuable experience.

I have three follow up questions for you:

1. Do you have any recommendations on how to improve the tour? Was there anything that you would have liked to experience or learn about American hops that was not part of the tour? One of the more interesting items on the tour was the single hopped beers at John Annen Farms. Although I didn't learn anything new from that particular set, it struck me that if your goal was to convert Euro hop users to American hops this could be an effective tool. A comparison of say Hallertauer Mittelfrueh with Mt. Hood , Liberty, Crystal. or compare Tettnang Tettnanger with Santiam, or compare CZ Saaz with Sterling, EKG with USGolding, etc. There are marketing

reasons for using European hops with traditional beer styles, but most breweries will consider blending in US hops if the flavor profile is consistent.

2. Would you be interested in receiving samples of any American hop varieties or hop products? If so, please send me the name of the variety or product, and the volume that would be necessary for a brewing trial.

I would be interested in doing some bench top trials with two products not in our breweries Chinook and Centennial T90 Pellets. A few Ounces would be enough.

3. Since the tour in July have you sampled or begun using any new varieties as a result of what you learned on the tour? This is one of the things that the Oregon Department of Ag is looking for as they evaluate the this tour, which was partially funded by ODA. If not, would you be interested in receiving a sample of a variety that your brewery has previously never used?

We are converting from EKG and Styrian Goldings to US Goldings, and CZ Saaz to US Sterling.

I hope to meet again sometime in the future. Please don't hesitate to contact me with any questions regarding American hops.

My best,  
Nancy

---

Response to the same three questions from John Callahan of Yuengling Brewing:

Hi Nancy, I had a wonderful experience on the tour, I gained a few contacts and am trying to convince our owner that there is more to life(hops), than just 2 suppliers. I even heard from a new one already, and am just waiting on pricing. We tried 2 new hops this summer for an Oktoberfest, which we never made before, Tettnang and Hallertau, it was a hit and we sold 1,000 Bbls. Thanks again for everything and maybe we'll meet again.

---

Hello Nancy,

Again, I had a really great time on the hop tour. Thank you and Michael and setting up the tour. Below are my responses.

1. Do you have any recommendations on how to improve the tour? Was there anything that you would have liked to experience or learn about American hops that was not part of the tour?

*I have no recommendations on how to improve the tour. I thought the tour was insightful and organized well. One area we did not see but I had interest in was how hop extracts are made. More information on substituting European hops for American hops would also be beneficial. i.e. How do US Tettnang differ from German Tettnang? How are European hops affected when grown in the US?*

2. Would you be interested in receiving samples of any American hop varieties or hop products? If so, please send me the name of the variety or product, and the volume that would be necessary for a brewing trial.

*At this time we are not interested in receiving samples. We have a surplus of hops that we are sitting on and trying to use up.*

3. Since the tour in July have you sampled or begun using any new varieties as a result of what you learned on the tour? This is one of the things that the Oregon Department of Ag is looking

for as they evaluate the this tour, which was partially funded by ODA. If not, would you be interested in receiving a sample of a variety that your brewery has previously never used? *Since the tour we have not begun sampling or using any new varieties as a result of the tour. Our flagship beer is strictly made with German and Austrian hops; although, in the future, if we design a new beer, we will be willing to try American hops.*

Cheers,

Jeff Eaton Jr, Trumer Brauerei, Lead Brewer/ Quality Assurance Analyst,  
[jeff.eaton@trumerusa.com](mailto:jeff.eaton@trumerusa.com)

Follow up survey sent to Gary Briggs of St. Louis Brewery:

It was a pleasure to meet both of you in July and to have the opportunity to host you on a tour of the US hop growing region. We sincerely appreciate you taking the time out of your schedule to learn more about American hops. I hope it was a valuable experience. **IT WAS A GOOD TIME, I THOROUGHLY ENJOYED THE EXPERIENCE AND TOOK A LOT AWAY FROM IT.**

I have three follow up questions for you:

1. Do you have any recommendations on how to improve the tour? Was there anything that you would have liked to experience or learn about American hops that was not part of the tour? **I CANT IMAGINE A MUCH BETTER EXPERIENCE. HOWEVER FOR ME PERSONALLY, WATCHING SOME SORT OF VIDEO OF THE TOTAL PROCESS FROM PLANTING TO HARVESTING WOULD HAVE ROUNDED OUT WHAT WE LEARNED DURING THE TOUR. IM NOT SURE WHERE THAT WOULD FIT IN, JUST A THOUGHT.**

Gary deferred the other two questions to their head brewer and I had not heard back from him at the time this report was submitted.

---

Response from Nick Vickery of St. Louis Brewery:

Hello Nancy-

It was a pleasure to meet you as well.

I cannot tell you how valuable the experience was for me. I have already begun to incorporate my experience into the retail staff training that we provide to our customers here at the brewery. I have gone from general statements about hops and the role they play in our industry to structured descriptions regarding the individual influence each variety has to offer. I often find myself reaching for the binder you provided as reference.

Thanks and I look forward to seeing you again soon. If you find yourself in St. Louis – please look us up.

Regarding the three questions:

1. Do you have any recommendations on how to improve the tour? Was there anything that you would have liked to experience or learn about American hops that was not part of the tour?

I would like to have seen more history. I recall the girl from Rogue talking quite a bit about the history (with photos) of the region and how the planting and harvest brought the different communities of people together. I realize a lot of the equipment we saw at these farms had been used for years but it would have been nice to learn more about where the industry has come.

## APPENDIX E

### Hop Disease Management and Food Alliance Certification Workshop

Thursday, February 11, 2010

Woodburn Fertilizer Conference Room  
868 N Front Street – Woodburn, OR

*Members of the Oregon hop industry are invited to participate in a hop disease management workshop. The event will include three presentations followed by a roundtable discussion. Please RSVP to the OHC office by phone (503) 982-7600 or email [nancy@oregonhops.org](mailto:nancy@oregonhops.org) by Tuesday, February 9<sup>th</sup> if you plan to attend. Lunch will be provided.*

- |               |   |
|---------------|---|
| 11:00 – 11:45 | Karen Lewotsky, Certification Director<br>Food Alliance <ul style="list-style-type: none"><li>• Introduction to the Food Alliance Certification Program</li></ul> |
| 12:00 – 12:30 | Dr. Dave Gent, Research Plant Pathologist<br>USDA-ARS <ul style="list-style-type: none"><li>• Disease Management Considerations for 2010</li></ul>                |
| 12:30 – 1:00  | Joanna Woods<br>Oregon State University Graduate Student <ul style="list-style-type: none"><li>• Integrating Powdery Mildew and Mite Management</li></ul>         |

**S22 Assessing the Decline and Future Potential of Fine Turf Grass Seed Markets in the  
United States with the Oregon Seed Council**

*Attachment 1:* Final Report

*Attachment 2:* Summary

# Strategic Initiatives for the Oregon Turfgrass Industry

Based on Industry Research

For:

## Oregon Seed Council

1193 Royvonne Avenue SE, Suite 11  
Salem, OR 97302

By:

**Globalwise Inc. & Decision Impact**

April 30, 2011

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## Overview

In the past year, Decision Impact Inc. and Globalwise Inc. (i.e., Consultants) have thoroughly studied the cool season turfgrass seed market. The Oregon Seed

Council and a Steering Committee of industry leaders has worked with these consultants to develop and implement a research design with multiple goals. These goals include gaining a better understanding of: the current market dynamics; particular issues / problems faced by the industry today; and possible solutions for implementation by the Oregon Seed Council as well as the industry as a whole.

For each step of this research process, members of the Steering Committee were fully involved by providing input and guidance to ensure that the methodology used and the analysis / interpretation of the data collected is appropriate and accurate. The Committee's perseverance and perspective throughout this process greatly added to the quality of the results.

This document is a product of the Consultants' understanding of the current market situation. It is their interpretation of what the industry should consider to achieve the highest likelihood of success for marketing cool season Oregon turfgrass seed products.

This document recommends specific strategic initiatives. In turn, upon review and acceptance / rejection of specific suggested initiatives, it is suggested that the industry draft a plan with a complete set of strategies and tactics. The Consultants will be available upon request to assist the industry/OCS if needed for this next step.

These initiatives are recommended to the Oregon grass seed without regard for whether they are within the scope of allowed activities for the Oregon Seed Council. They are based on the Consultants current understanding of the market situation as developed over the past year via the research process and assistance / guidance of the Steering Committee.

Each initiative is articulated and supported by an explanation. Action Items are provided for the initiatives to better explain why the Consultants recommend the initiative. These are not a complete set of actions or tactics which ensure successful completion of the Initiative. Finally, these proposed initiatives are interrelated to a varying degree.

## Summary Observations

Before proceeding to the strategic initiatives, it is important to summarize the observations and interpretations created from the extensive research effort undertaken for this particular endeavor. A more comprehensive discussion of these observations can be found in the "Final Thoughts" section of the report titled Turfgrass Seed Market Study – A Summary which is available from the Oregon Seed Council.

## Industry Progression

The industry is changing in a natural progression within the mature stage of the product lifecycle. To successfully compete in such a market environment the parties involved (Farmers, Dealers, etc.) must have a clear understanding of what occurs in that stage of the product life cycle. These parties must develop, define, and redefine their core competencies based on the changing needs of their target markets as the natural evolution of change occurs across the channel.

The research indicates that buyers are quite clearly aware of the changes in the market and economy. They are particularly interested in obtaining as much value as possible from products. Since there are many competitive options available, consumers can truly be selective based on their perceptions of price and quality. Successful competitors understand this dynamic and act accordingly to position themselves to provide the high levels of perceived value as well as differentiating themselves based on other key drivers of importance (such as relationships and location).

Market players are differentiating themselves in at least one of three ways. First, they can focus solely on price or quality. Second, they can key in other important stated needs that buyers articulate, or third, they can find and focus on new markets, buyers, or opportunities (i.e., consumer, export, etc.) for their products.

The research identifies other buyer needs that are important in respect to competitive position. The important buyer buying criteria are: vendor relationships, customer support, product availability and convenience in acquiring product; the localness or accessibility of the vendor to the client; and, delivery ease, time and cost.

Finally, new market opportunities can also be addressed. These opportunities may come in the form of: new and changing channels of distribution (e.g., mass merchandisers, or vertical integration); new emerging markets (e.g., consumer, or export); strategic alliances; and possibly new product development.

### **Market Change Felt First and Most Deeply at Growers and Dealer Level**

Second, the further up the channel (e.g. toward the growers), the more sensitive players are to industry change and issues. This can be seen not only in changes in inventory and sales over the past few years, but also in relative sensitivity to industry threats and issues (e.g., artificial turf, water use, and eco-trends and influences). Even though the research shows resellers and buyers may not be as aware of some of these concerns as are Dealers and Farmers, it does not mean these threats and issues should be discounted. Instead they should be viewed as an opportunity to be proactive and not reactive from either a company or industry standpoint.

To be proactive, key players must have the knowledge and strategy in mind to stay on top of the industry over time and in real time. This means Dealers and Farmers must be able to better predict industry change in respect to market demand and supply. They must work together to identify industry threats. Finally, they need to consciously develop information processes that will ensure systematic collection, dissemination and analysis of important market and industry data that can be used by their members to plan accordingly and in some

cases take more immediate action when changes in demand or supply occur or new threats emerge.

## Leverage Strengths

Third, it is important the key industry members organize and unify to leverage their here-to-fore unrealized strength. They also need to combat potential barriers. This begins by bringing Dealers and Farmers and all of their representative bodies together to agree upon a similar set of goals and objectives. This effort will address some of the problems that have existed between these two interest groups for some time. Just as importantly it will establish a framework for how to address competitive threats and marketing opportunities outside of the State as well as achieve resource and government support within the State. One much louder voice and a “big stick” will go a long way to address many of the issues and concerns Dealers and Farmers have today.

Fourth, even though “product origin” is perceived not to be as important today to resellers and buyers as in the past, Oregon Farmers should still leverage brand equity as much as possible. It begins with the knowledge that Oregon cool season turfgrass seed still dominates the marketplace in respect to sales share and product quality. The region should work to dominate the market competitively and position itself accordingly. Assuming a leadership role begins with the attitude that Oregon should have strong brand equity. Creating a national identity through the creation of a national association; certifying the Oregon brand; formulating aggressive national public relations efforts, conducting education and lobbying to support and protect the industry are several areas that should be seriously considered by the industry.

## Strategic Initiatives

### Strategic Initiative 1: Create a Unified Association that is National in Scope

#### *Observations / Facts:*

There are multiple organizations in the State of Oregon that represent the interests by particular turfgrass specie or channel member in the turfgrass seed industry. It was also discovered that many states have their own state-wide associations and that there currently is no national organization/association for turfgrass seed.

Historically, Oregon has dominated the national marketplace for cool season turfgrass. The major suppliers and the majority of wholesalers (e.g., “Dealers”\*) reside in Oregon or have a significant presence here.

Newer but smaller regions (Minnesota, Missouri, Alberta Canada, etc.) are competing with Oregon products. Even though these newer production regions may not be perceived to provide the same level of product quality they are geographically closer to most of the target markets. This research found that product availability, convenience, location, delivery ease and delivery cost are becoming more important to resellers and final commercial buyers.

Brand equity is an important competitive advantage to most companies. Due to the perceived relationship between improved product quality and brand equity, in a competitive mature marketplace products with strong brand equity can be priced higher than comparable competitive products. To that end, Oregon-grown turfgrass seed has enjoyed stronger brand equity for quite some time. This is not something to let slip away—particularly in a more price sensitive competitive environment.

### **Key Action Items:**

The State can take the position it deserves and assume national competitive dominance. Within Oregon, unify across all representative associations and assume a new role as the national representative body for the industry.

Work with other agricultural groups within the State. Act in the role befitting agriculture as the number one industry to secure proper support and resources from within the State and also access other out-of-state sources.

As a national association, seek out membership from each state's own associations and their members. Create a proactive plan that results in national and regional trade shows, meetings, seminars, training programs (complete with certification) etc. Develop a marketing plan that educates, informs, promotes and lobbies nationally and locally. Focus on the audiences that need to be addressed (e.g., government, universities, consumers, retail, etc.) and target strategies accordingly.

Create a national website or community complete with the ability to interact (i.e., discussion boards, staff postings and more), educate (i.e., on-line training, certification, and more), inform (white papers, post articles and more) and promote (new products, key business news and more).

Develop the capabilities to collect, analyze and disseminate market data and industry information to association members regularly. Develop support functions to track market trends and forecast demand / supply, along with other insightful facts.

## **Strategic Initiative 2: Create and Manage an on-going Knowledge Management System for Key Members of the Industry**

### **Observations / Facts:**

The research from this project shows that information regarding the state of the market is not systematically collected and disseminated across key members within the industry. Such a system can assist key members respond to market supply and demand issues as well as identify and track industry threats.

### **Key Action Items:**

Create and maintain a knowledge management system with primary elements. The elements of this system should include any on-going secondary information (including media stories and publications, white papers, government studies, etc.); sales, shipping, inventory data trends provided by key players (i.e., Dealers,

etc.); market analyses and forecasts (internally and externally created); and primary research conducted on a regular basis to track performance measures essential to the well-being of the industry.

The membership community should come to an agreement regarding specific information needs and then work together to generate a plan which will address those needs regularly and on a real time basis.

The primary goal is to give key industry members the information that supports their need to be proactive and strategic.

### **Strategic Initiative 3: Develop Programs to Protect the Investment of Private Firms who are Investing in New Varieties**

#### ***Observations / Facts:***

Research for new seed variety development is an extremely costly and time consuming endeavor. Universities in the U.S., including Oregon State University, have generally stopped conducting seed breeding research. The high risk that other firms will duplicate or claim the same seed properties as the firms that undertake the development of new varieties has reduced innovative private sector research. New protections or approaches for seed breeding research are needed.

#### ***Key Action Items:***

Determine if the European system for variety patent protection or a close variant can be implemented in Oregon. If it can, pursue this or a modified system as soon as practical.

Explore how the Oregon industry can work with Oregon State University to develop new breeding programs or broader collaborations with other universities or the private sector. The industry should also actively seek funding for research on new, break-through variety releases.

### **Strategic Initiative 4: Improve Dealer & Grower Performance**

#### ***Observations / Facts:***

Many Dealers have strongly indicated that a “low bar” exists for becoming an Oregon turfgrass dealer. The view is that this weakens the Dealer structure and disrupts market development. A primary concern is that companies can enter as Dealers without building a strong product offering or marketing program. The companies that want to be “quick sale” inventory movers are frequently the low cost sellers that undercut other companies making long term efforts to build profitable, stable business.

Growers have concerns that current business practices and the legal system in Oregon allow Dealers to establish seed production contracts with Growers that include inequitable payment terms. Vague and unenforceable language in production contracts is also cited as a means for Dealers to speculate in seed

markets and pass the risk of oversupply disproportionately to growers. This places a majority of Dealers at a disadvantage who want to enter equitable production contracts with Growers.

***Key Action Items:***

Require that contracts between Dealers and Growers include clear standards for setting prices, establishing the time period for Grower payment and adding requirements for Dealers to hold bonds.

**Strategic Initiative 5: Develop Improved Distribution Strategies to Reach Customers**

***Observations / Facts:***

After price and product quality, continued long-term success with cool season turfgrass seed Resellers and Buyers depends on: distribution speed and cost as well as a good relationship with a local sales entity having readily available and conveniently accessible product. Since Oregon channel members are competing with products grown closer to the key markets of interest, it is imperative to develop a distribution strategy that positions Oregon products competitively overtime.

Even though a strong brand equity program should discount this logistical relationship problem to some degree, Buyers and Resellers will continue to demand more from turfgrass seed sellers in regard to customer service, sale relationships, orders, shipments, packaging, and delivery.

***Key Action Items:***

Having a local presence with available inventory conveniently accessible and supported with good customer service at a reasonably competitive price is imperative. Obvious answers to this growing competitive requirement include holding inventory products closer to the customer; developing creative shipping and distribution strategies to reduce the time and cost of delivery; and rethinking the current relationship with Resellers / Buyers in respect to orders, shipping quantities and type, and packaging. Having a local presence can also provide a competitive advantage.

To understand this market opportunity and growing competitive threat, this issue must be studied further in respect to what can be done legally, financially, and competitively by members of the Oregon industry. However, it is something that needs to be addressed now particularly if no action is taken to emphasize Oregon brand equity and if there is a continuing emphasis on aggressive differentiation based on price and convenience.

## **Strategic Initiative 6: Enhance Market Development**

### ***Observations / Facts:***

The recently completed research did not include analysis of customers who buy turfgrass in the Big Box retail chain stores. It was discovered that commercial buyers are not yet buying turfgrass seed through mass merchandisers (Big Box) however the research to-date shows that the consumer market is the largest single sales channel for cool season turfgrass seed. The growth of sales in Big Box stores is going to be a major determinant of the size and profitability of the Oregon turfgrass industry in the future. Also, research has shown that a significant percent of sales (10%) is attributed to exporting.

The industry has left market development to individual companies. As an industry there is not a coordinated effort to stimulate or even better understand the most viable market segments (consumer, export, etc.). It makes sense to explore and further understand the market dynamics of these segments.

### ***Key Action Items:***

More research should be done in both the consumer and export market segments. Big Box store category managers must be targeted to better understand their attitudes, perceptions, buying habits, and business constraints. The general consumer marketplace should be queried in respect to their knowledge, and understanding of cool season turfgrass seed product solutions. Finally more research should be performed on the market dynamics / logistics associated with the export market.

## **Strategic Initiative 7: Develop a Strong Branding Strategy for Oregon**

### ***Observations / Facts:***

Research indicates that there is a larger than expected number of Resellers and Buyers who do not know the domestic origin of the seed. They also do not recognize Oregon seed as being the dominant product group in this market with intrinsically superior characteristics. In addition, many established Dealers / Wholesalers want the flexibility to blend Oregon seed with varieties from other production areas.

There should be a greater level of awareness that Oregon is the major production area and that Buyers have sound reasons for keeping strong ties to Oregon Growers and Dealers. Missouri, Minnesota and other states will continue to challenge Oregon production.

Strong, recognized and well-perceived brand equity is a competitive advantage Oregon Growers are cautioned to not let slip away. This is particularly true with a tightening marketplace in respect to pricing and competition. Building brand equity will provide the Oregon turfgrass seed industry with advantages in pricing and marketing to repel competitive advances from products grown in other states.

### ***Key Action Items:***

Commit to branding and certification of products originating from the State as “Made in Oregon.” Work with the Growers to establish quality standards and expected levels of composition in respect to location of origin (e.g., 90% grown in the State).

Organize annual green industry writer’s tours to ensure the extensive testing, research and seed production infrastructure of Oregon is known, documented and well presented in electronic and print media. This infrastructure should also be touted in a widely disseminated DVD and on the Internet.

Develop a speaker’s bureau of Oregon industry spokespersons to address students in the leading colleges and universities which offer turf management classes.

Include descriptions of the major successes of Oregon turfgrass seed in domestic and international markets in publications and news releases as evidence of the worldwide recognition achieved by the state’s seed industry.

**Strategic Initiative 8: Develop a Strong Marketing Program particularly emphasizing an Aggressive Marketing Communications Plan (i.e., Information, Education, Promotion, and Public Relations – including Lobbying)**

***Observations / Facts:***

Even though research with Resellers and Buyers did not show significant concern regarding potential market problems, secondary research identified an on-going series of articles and stories providing negative images and messages of turfgrass seed products to the general public. These negative messages are found in government reports, publications disseminated by environmental groups, and widely distributed news stories. These messages include assertions that turf areas should be minimized or eliminated for any number of reasons, mostly environmental.

Besides the spread of misinformation there is also the continual need to educate the general consumer, commercial buyers and channel members regarding the application and benefits of turfgrass seed product.

The Oregon turfgrass seed industry is a huge factor in the Oregon economy. However the industry’s influence and importance is not fully expressed in the Oregon legislature; the federal government and its agencies; with State agencies; or with Oregon State University.

Finally, Oregon has historically been the dominant state for production and distribution of turfgrass seed products. However other states are expanding their production. Education and knowledge of Oregon’s on-going supply dominance and the factors behind this will go a long way in improving the State’s competitive advantage and increasing its brand equity.

***Key Action Items:***

Launch a systematic and efficient “process” that informs, educates and promotes Oregon turfgrass seed products to the primary audiences. This process entails identifying each of these interest groups (e.g., the media, the general consumer, channel members, state agencies, and legislators). The process also should establish the key messages to convey in the categories of (education-based, information-based, and promotion-based). The best mediums also need to be identified (e.g., website, direct marketing, point of purchase, press release, on-line training, white paper, or direct communication via lobbying). The process continues by establishing communication strategies and tactics focused on stated objectives the industry wishes to achieve in the short-term and long-term within budgets and timelines.

An organized, focused association that combines the interests of state and regional turfgrass associations can dominate the national marketplace (i.e., a national association). With one voice the stated communication objectives can be addressed. It is much easier to communicate with national agencies and the media if the origination of the message is from a credible national resource rather than one of many local / state-based entities.

There is an obvious need to develop on-going communication forums that efficiently capture and retain the basic information resources for audiences. A well designed website is ideal to supply on-going information to viewers of interest. Promotion of this website to the target audiences is as important as creating its content.

This website can also serve as an initial point of contact for other information resources that may be available to these particular audiences of interest. This may include customer service / support; a retrieval center for particular information resources (i.e., white papers, and videos); an interactive center including discussion boards and expert opinion / advice centers; on-line training; market channel contact information; important research data and reports; and lobbying news.

Strategic alliances with other agencies may prove to be a better method than alternative methods / mediums to achieve certain communication objectives. Affiliation might be very effective with groups like Turf Producers International (TPI) and PLANET (Professional Landcare Network) to deliver the positive messages campaign in key regions and principal U.S. market segments.

The focus of this systematic planning effort is to convey targeted messages across constituent groups. This could be as simple as increasing awareness and knowledge of a particular timely topic or as difficult as persuading consumers to change buyer behavior or marshal constituents to urge legislators to pass a new amendment. Whatever the objectives, they must be measured for performance evaluation. At the outset the plan should have core measureable objectives with a performance measurement system complete with market tracking to determine the level of implementation success achieved.

Finally, the program should place more emphasis on lobbying the Oregon legislature on behalf of the industry. Expanding the time spent lobbying in concert with a public relations campaign is very powerful. Commission research to more clearly articulate the dominance and importance of turfgrass production to the Oregon economy will leverage the lobbying effort. Other key elements of the program are regular engagement with the Oregon Department of Agriculture

on policy decisions and efforts to secure more research funding for targeted projects for Oregon State University.

## Summary

Bold and new efforts are needed if the Oregon turfgrass industry is going to regain its preeminence in the marketplace and achieve its future potential. The initiatives discussed here logically result from the findings of the research conducted to date. Taking action on this research, plus learning from the unfortunate conditions experienced in the last four years, will help move the industry toward a more prosperous future.

# Turfgrass Seed Market Study - A Summary

April 2011

Globalwise Inc. & Decision Impact

# Overview

- ∅ Introduction
  - ∅ Who We Are
  - ∅ Our Method
- ∅ Overall Purpose
- ∅ Research Methodology
  - ∅ A 4 Step Process
  - ∅ Who Participated
- ∅ Key Findings
  - ∅ Market Change
  - ∅ Buying Habit Changes
  - ∅ What's Truly Important
  - ∅ Perceived Market Problems
  - ∅ Tested Market Solutions

# Introduction

- Ø Who We Are
  - Ø Combination of 2 Companies
  - Ø Project Managers:
    - Ø Bruce Prenguber, MS Agri-Economist
    - Ø Dr. Don Roupe, Researcher / Analyst / Strategist
  - Ø Positioned as Problem Solvers for Decision Makers
  - Ø Good Team Based on the OSC's needs

# Introduction

## Ø Our Method

- Ø Top-tier issue for the seed industry, Oregon agriculture and State economy
- Ø Use a combination of primary research methods (e.g., Exploratory Research) to identify and understand current problems / issues / causes thoroughly before identifying and testing potential solution(s) (Quantitative Research).
- Ø Collaborate closely with the Client on each step of the research & strategy process to ensure final strategy is relevant and practical.
- Ø Glean Council's expertise
- Ø Generate consensus and ownership
- Ø Enrich Consultant's knowledge and understanding

## Overall Purpose

- Ø Oregon cool-season turfgrass seed producers (Farmers and Dealers) need to understand the market dynamics and attitudes / perceptions of the turfgrass seed marketplace so that they can better plan and evaluate prospects for market development.
- Ø Must answer 2 Key Questions:
  - Ø What is the true current state of the marketplace?
    - Ø Define how bad/good it is (e.g., market dynamics)
    - Ø Identify and prioritize problems
      - Ø Gain consensus
    - Ø Quantify understanding and identify/test possible solutions
  - Ø How does the industry address this market situation?
    - Ø Through collaboration with the Client
    - Ø Practical recommendations that fit the industry's position and capabilities

## Research Methodology

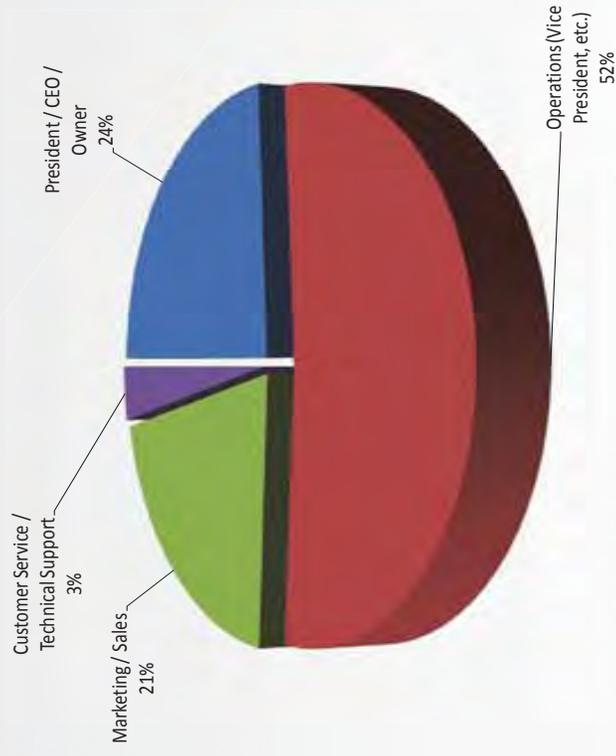
- ∅ Combination of Research Efforts – 4 step process
  - ∅ First step, clearly define and articulate the problem at hand
    - ∅ Understand issues, gain consensus on perspective using exploratory research methods.
    - ∅ Combine secondary information gathering / analysis and qualitative research methods.
    - ∅ Secondary information audit – publications and on-line
      - ∅ Focus groups with Oregon seed dealers
      - ∅ One-on-one opinion leader interviews
  - ∅ Second step, quantify the seriousness of the problem, prioritize problems, test possible solutions
    - ∅ Based on the results of the first step and realities

# Research Methodology

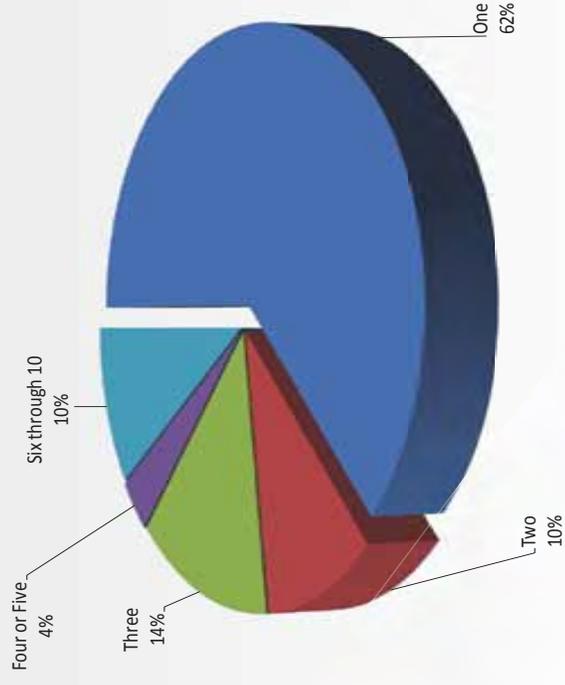
- Ø Oregon Dealer Study – using on-line surveys
- Ø National Buyer/Reseller Study – using telephone interviews
- Ø Third step – analyze and interpret all the data
  - Ø Draw meaningful conclusions
  - Ø Determine current market dynamics
  - Ø Identify and prioritize possible solutions
- Ø Fourth step – strategize
  - Ø Create effective strategic initiatives

# Research Methodology – Who Participated (Oregon Dealer Study)

Dealer Respondents By Job Title (n=29)



Number of Work Locations in Oregon (n=29)



# Research Methodology - Who Participated (National Buyer Study)

## Buyer Survey Participation Across Segments\* and Regions\*\*

	North	Northeast	Southwest	Southeast	East/Transition	Total
Golf	27	25	24	23	26	125
Government	24	24	26	25	26	125
Commercial	27	25	23	25	25	125
<b>Total</b>	<b>78</b>	<b>74</b>	<b>73</b>	<b>73</b>	<b>77</b>	<b>375</b>

\* Buyer Segments were defined as entities responsible for the purchase of cool season turfgrass seed for:

- Golf Courses (e.g., superintendents, course maintenance, etc.)
- Federal Sector (e.g., parks, recreation, schools and other municipal related projects)
- Commercial Landscaping (e.g., large landscapers and landscape maintenance companies only)

\*\* Regions are based on state delineation:

- Northern: North Dakota, South Dakota, Colorado, Nebraska, Minnesota, Iowa, Wisconsin, Illinois, Indiana, & Michigan
- Northeastern: Ohio, Pennsylvania, New York, New Jersey, Vermont, New Hampshire, Maine, & Connecticut
- East/Transition: Missouri, Kansas, Arkansas, Tennessee, Kentucky, Virginia, Maryland, & North Carolina
- Southwest: California, Nevada, Utah, Arizona, New Mexico, and West Texas
- Southeast: East Texas, Louisiana, Mississippi, Alabama, Georgia, South Carolina & Florida

# Research Methodology - Who Participated (National Reseller Study)

## Reseller Study Participation Across Segments\* and Regions\*\*

	North	Northeast	Southwest	Southeast	East/Transition	Total
	23	23	23	17	17	103

\* Reseller Segments included Industry "Distributors" and Large Independent Retailers.

\*\* Regions are based on state delineation:

- Northern: North Dakota, South Dakota, Colorado, Nebraska, Minnesota, Iowa, Wisconsin, Illinois, Indiana, & Michigan
- Northeastern: Ohio, Pennsylvania, New York, New Jersey, Vermont, New Hampshire, Maine, & Connecticut
- East/Transition: Missouri, Kansas, Arkansas, Tennessee, Kentucky, Virginia, Maryland, & North Carolina
- Southwest: California, Nevada, Utah, Arizona, New Mexico, and West Texas
- Southeast: East Texas, Louisiana, Mississippi, Alabama, Georgia, South Carolina & Florida

## Key Findings

- ∅ Market Change
- ∅ Buying Habit Changes
- ∅ What's Truly Important
- ∅ Perceived Market Problems
- ∅ Tested Market Solutions

## Key Findings

1. A critical time for *market change* – effects felt to differing degree across the entire channel.
2. *Buying habit changes* have occurred, but not as expected.
3. *What's truly important* to channel members. This affects what is done regarding Oregon branding and position strategy.
4. *Perceived market problems* – probably not as significant down the channel.
5. *Tested market solutions* – what should be the focus of the Strategic Initiatives.

## Key Findings – Market Change

- ∅ The industry is at a critical point of change
- ∅ Over supply at the supplier's end (e.g., farmers and dealers\*) of the channel
- ∅ Supply / Demand cyclical in nature
- ∅ Inventory clearing in progress
- ∅ Currently at bottom of the cycle with predicted increase in the future
- ∅ Serious doubt 2008 sales & revenue levels will ever return
- ∅ Intense price competition forcing lower margins
- ∅ Infrastructure is changing
- ∅ Intense and changing competition – vertical integration, shifts in channel power, exploring new markets

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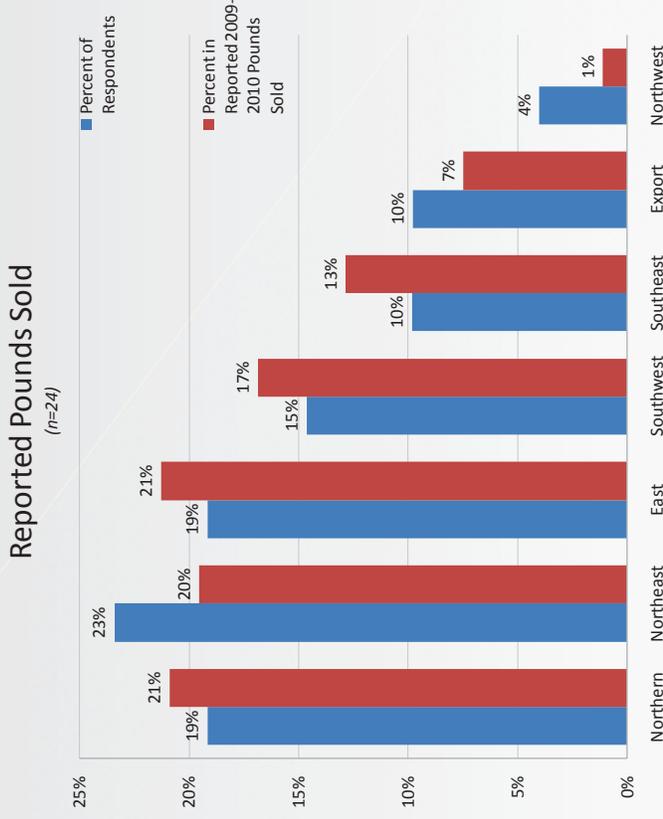
\* "Distributor" and "Dealer" channel labels in the industry are atypical, backwards and confusing. New labels referring "Dealers" as Wholesalers and "Distributors" as Resellers is more appropriate and recommended

## Key Findings - Market Change

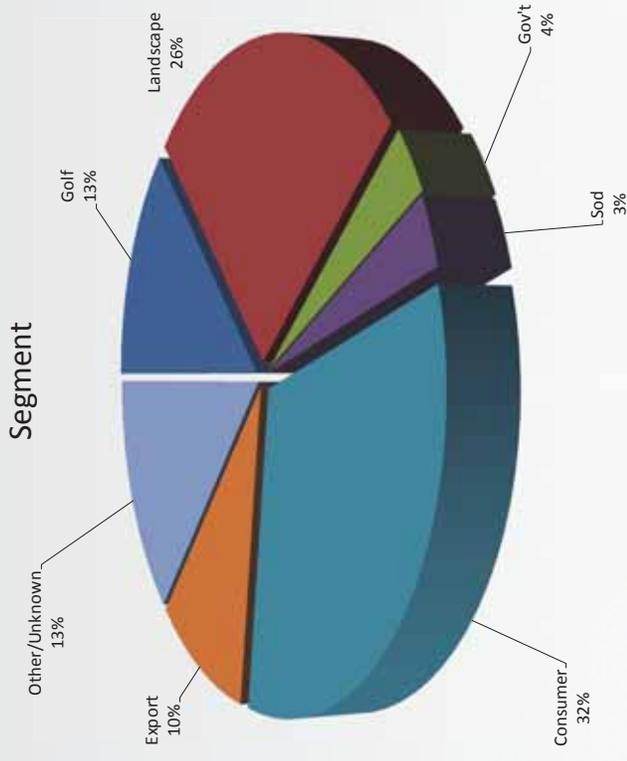
- Ø Reduced barriers of entry to the channel
- Ø Elimination of channel members at the Reseller level
- Ø Growing perceived importance of new channel members (e.g., mass merchandisers and exports)
- Ø Natural evolution as market growth reaches mature stage of this product's life-cycle
- Ø Continued emphasis on new product development and improved product quality
- Ø Inability to protect innovation has restricted true product differentiation for any sustainable period of time

# Key Findings - Market Change (Dealer Sales)

Regional Breakout By Respondent and 2009-2010



2009 - 2010 Dealer Sales (in Pounds) By Customer Segment



- Ø 2009-2010 cool-season turfgrass seed projected sales of 550 to 565 mill. lbs spread fairly evenly across US regions with a rising percentage exported.
- Ø Consumer Segment is the largest (32%) with the Landscape Segment coming in 2<sup>nd</sup> (26%) and Golf Segment 3<sup>rd</sup> (13%).

# Key Findings - Market Change (Dealer Sales)

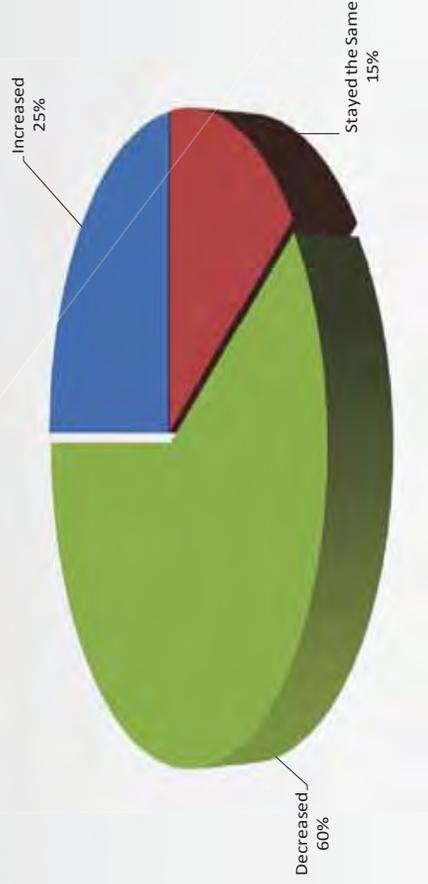
## 2009 - 2010 US Turfgrass Seed Dealer Sales by Region and Customer Segment

	Northern	Northeast	East/Transition	Southwest	Southeast	Total
Golf	1%	2%	3%	5%	5%	16%
Landscape / Professional	6%	6%	10%	8%	4%	33%
Government / School	1%	1%	1%	1%	1%	4%
Sod Farms	0%	2%	1%	1%	1%	4%
Consumer	12%	7%	9%	5%	7%	40%
Other	0%	1%	2%	0%	1%	3%
Total	19%	18%	26%	20%	17%	100%

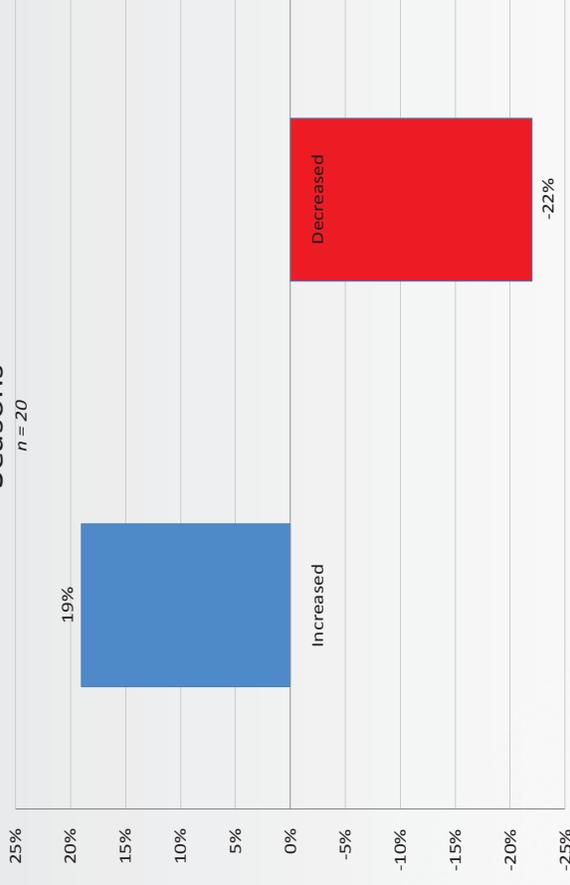
❖ Excluding Export and Northwest estimates, the largest regions / segments were: Northern/Consumer (12%), Eastern-Transition / Landscape (10%), Eastern-Transition/Consumer (9%), Southwest/Landscape (8%) and Northeast/Consumer (7%).

# Key Findings - Market Change (Dealer Sales)

Dealer Estimated Change in Turfgrass Seed Sales  
From 2005/2006 to 2009/2010 Crop Seasons  
(% of Dealers)  
n = 20



Dealer Estimated Change in Percentage of Sales  
(in Pounds) from 2005/2006 to 2009/2010 Crop  
Seasons  
n = 20



- Ø Between 2005/2006 and 2008/2009 crop seasons, 60% of Dealers claimed sales decreased by an average amount (pounds) of 22%, while 25% asserted sales increased by an average amount of 19%. The net change in sales (pounds) during this time period is minus 18%.

# Key Findings - Market Change (Dealer Sales)

## Turf Grass Seed Dealer Sales Changes Between 2005/2006 and 2009/2010 Growing Seasons

Segment / Region	Dealer % Increased	Dealer % Decreased	Dealer % No Change	Pounds Ave. % Increase	Pounds Ave. % Decrease
Northern	12%	63%	25%	10%	-28%
Northeast	20%	67%	13%	19%	-21%
East/Transition	20%	60%	20%	17%	-22%
Southwest	8%	62%	30%	20%	-29%
Southeast	15%	62%	23%	5%	-20%
Golf	15%	69%	15%	30%	-31%
Landscape / Professional	15%	77%	23%	25%	-25%
Government / School	0%	80%	20%	0%	-23%
Sod	0%	100%	0%	0%	-56%
Consumers	10%	50%	40%	25%	-16%



Southwest (-29%) and Northern Regions (-28%) had the highest sales decline while the Golf Segment (-30%) had the highest Dealer stated average increase.

# Key Findings - Market Change (Channel Comparison)

	Respondents			Sales / Purchases		
	Increase	Decrease	Stayed the Same	Increase	Decrease	Net Change
2005/06 to 2008/09 Dealer Sales	25%	60%	15%	23%	-31%	-13%
2008 - 2010 Reseller Sales	24%	50%	26%	15%	-30%	-13%
2008-2010 Buyer Purchases	20%	35%	45%	30%	-36%	-8%

Ø Between 2008 and 2010, 50% of the Resellers claimed a turfgrass seed sales decrease while 24% asserted an increase. The half who saw a decline claimed a rate of decline of 30%, while the quarter who claimed an increase had a 15% average increase resulting in a net change of -13%.

Ø In turn, during the same period, 35% of Buyers claimed purchase declines and 20% asserted they purchased more, resulting in a net change of -8%.

# Key Findings -Market Change (Resellers)

## Turfgrass Seed Reseller Sales Behavior Between 2008 and 2010

	North	Northeast	Southwest	Southeast	East/ Transition	Total
Bought More	13.0%	39.1%	17.4%	23.5%	29.4%	24.3%
Bought Less	60.9%	56.5%	60.9%	41.2%	47.1%	49.5%
Stayed the Same	26.1%	4.3%	21.7%	35.3%	23.5%	26.2%
% Increase	25.0%	14.3%	8.8%	12.5%	15.0%	14.6%
% Decrease	26.4%	25.0%	34.3%	30.7%	36.9%	30.1%
Net Change*	-12.8%	-8.5%	-19.4%	-9.7%	-12.9%	-12.8%
Sample Size	23	23	23	17	17	103

Ø By region, Southwest Resellers claimed the biggest net loss in sales (19.4%) while the Northeast (8.5%) and Southeast (9.7%) saw the smallest net loss.

Ø “The economy”, “the weather” and “building starts” were the major reasons cited for the decline. “The weather” and “pricing decreases” were the major reasons cited for the increase

# Key Findings – Market Change (Buyers)

## Turfgrass Seed Buyer Purchase Behavior Between 2008 and 2010

	Golf	Gov't	Commercial	North	Northeast	Southwest	Southeast	East/Transition	Total
Bought More	21.6%	20.8%	17.6%	23.1%	27.0%	12.3%	13.7%	23.4%	20.0%
Bought Less	40.8%	30.4%	34.4%	29.5%	41.9%	42.5%	37.0%	26.0%	35.2%
Stayed the Same	37.6%	48.8%	48.0%	47.4%	31.1%	45.2%	49.3%	50.6%	44.8%
% Increase									
% Decrease	22.6%	21.9%	19.8%	20.8%	21.9%	27.8%	20.5%	19.3%	21.5%
Net Change*	36.4%	34.2%	29.3%	36.2%	21.5%	35.5%	37.4%	40.4%	33.5%
	-9.98%	-5.83%	-6.60%	-5.86%	-3.08%	-11.64%	-11.03%	-5.97%	-7.47%
Sample Size	125	125	125	78	74	73	73	77	375

percentage of Respondents who bought less turfgrass as well as the highest decline in net change between 2008 and 2010. Southwest and Southeast Respondents were less likely to buy more turfgrass seed than the other regions and had the highest decline in net

# Key Findings - Market Change (The

Context)

## Projected Turfgrass Seed Reseller Sales Behavior Between 2010 and 2011

	North	Northeast	Southwest	Southeast	East/ Transition	Total
Increase	13.0%	30.4%	17.4%	17.6%	41.2%	23.3%
Decrease	0.0%	17.4%	13.0%	11.8%	5.9%	9.7%
Stay the Same	87.0%	52.2%	69.6%	70.6%	52.9%	67.0%
% Increase	22.3%	10.0%	16.3%	10.0%	22.9%	16.6%
% Decrease	0.0%	12.5%	11.7%	45.0%	30.0%	20.5%
Net Change*	2.9%	0.9%	1.3%	-4.1%	7.7%	1.7%
Sample Size	23	23	23	17	17	103

Ø **Almost 1/4 (23%) of Resellers felt purchases would increase over this next year while 1/10 (10%) claimed sales would decline and 2/3rds (68%) felt they would remain the same. This represented a net change of 1.7%. An improving economy, more customer demand and a reduction in competition were cited most often as reasons for optimism regarding future growth.** <sup>22</sup>

# Key Findings - Market Change (The Future)

Projected Turfgrass Seed Buyer Purchase Behavior Between 2010 and 2011

	Golf	Gov't	Commercial	North	Northeast	Southwest	Southeast	East/Trans	Total
Increase	23.0%	13.2%	16.5%	13.2%	18.8%	18.8%	14.7%	21.9%	17.5%
Decrease	17.7%	16.5%	9.9%	19.7%	11.6%	15.9%	14.7%	11.0%	14.6%
Stay the Same	59.3%	70.2%	73.6%	67.1%	69.6%	65.2%	70.6%	67.1%	67.9%
% Increase	28.8%	27.4%	34.9%	36.2%	41.5%	37.5%	22.0%	16.3%	30.4%
% Decrease	30.4%	36.2%	46.3%	35.3%	45.8%	40.2%	34.0%	29.1%	36.4%
Net Change*	1.14%	-2.00%	1.14%	-2.15%	3.58%	0.63%	-1.64%	0.15%	0.09%
Sample Size	125	125	125	78	74	73	73	77	375

Ø 30% of Buyers felt purchases would increase while 36% asserted purchases would decrease. When Respondents who felt there would be a change were asked how much that change would be the net change result is .09%.

## Key Findings - Changing Buying Habits

- ∅ Because of changing markets and buyer expectations surviving channel members will have to re-focus their efforts to remain competitive.
- ∅ New places to buy / low barriers of entry lead to new players, changing channel dynamics, new markets, a shift in the consumer attitude (growing emphasis on DIY, etc.) due to changes in the economy / marketplace create new opportunities.
- ∅ New Resellers - elimination of steps in distribution to remain price competitive (Dealers over Distributors), intense competition across Distributors, and a continued growing influence of the mass merchandiser.
- ∅ The Challenge of Price and the need to redefine

# Key Findings - Changing Buying Habits (Reseller's Customers)

Resellers - Who They Sell To and Who is Their Biggest Customer  
n = 103

	Total Mentions	Number One Customer
Golf Courses	60.2%	8.7%
Commercial Landscape Companies	60.2%	24.3%
Government / Schools	49.5%	10.7%
Sod Producers	16.5%	1.9%
Brokers, Distributors, or Resellers	31.1%	13.6%
Stores	43.7%	23.3%
Businesses	14.6%	4.9%
Professional Turf Grass Companies	1.9%	0.0%
Builders	5.8%	10.7%
Other	5.9%	1.9%

Resellers sell to a variety of customers. Almost 2/3<sup>rd</sup> (60%) sell to Golf Courses and/or Commercial Landscape Companies, while 1/2 sell to Government / Schools. Commercial Landscape Companies (24.3%) and Stores (23.3%) were identified most often as the Reseller's highest customer

# Key Findings – Changing Buying Habits (Buyer’s Vendors)

Buyers -- Where is Turfgrass Seed Typically Purchased (Multiple Mentions)									
	Golf	Gov't	Commercial	North	Northeast	Southwest	Southeast	East/ Transition	Total
Local Vendor / Distributor	66.7%	76.6%	75.0%	71.8%	75.7%	70.8%	75.3%	70.3%	72.8%
Local Retail Store	4.1%	4.0%	6.5%	5.1%	0.0%	2.8%	5.5%	10.8%	4.9%
Large Retail Store (Home Depot)	4.9%	2.4%	1.6%	1.3%	2.7%	1.4%	6.8%	2.7%	3.0%
Larger National Vendor (Dealer)	25.2%	21.0%	13.7%	21.8%	18.9%	20.8%	15.1%	23.0%	19.9%
Direct From Farm	2.4%	1.6%	4.8%	3.8%	2.7%	1.4%	2.7%	4.1%	3.0%
Sample Size	117	119	112	73	70	67	70	68	348

almost 3/4<sup>th</sup> (73%) of Buyers have purchased from a local vendor and 20% have bought from a Large National Vendor.

# Key Findings – Changing Buying Habits (Buyer’s Vendors)

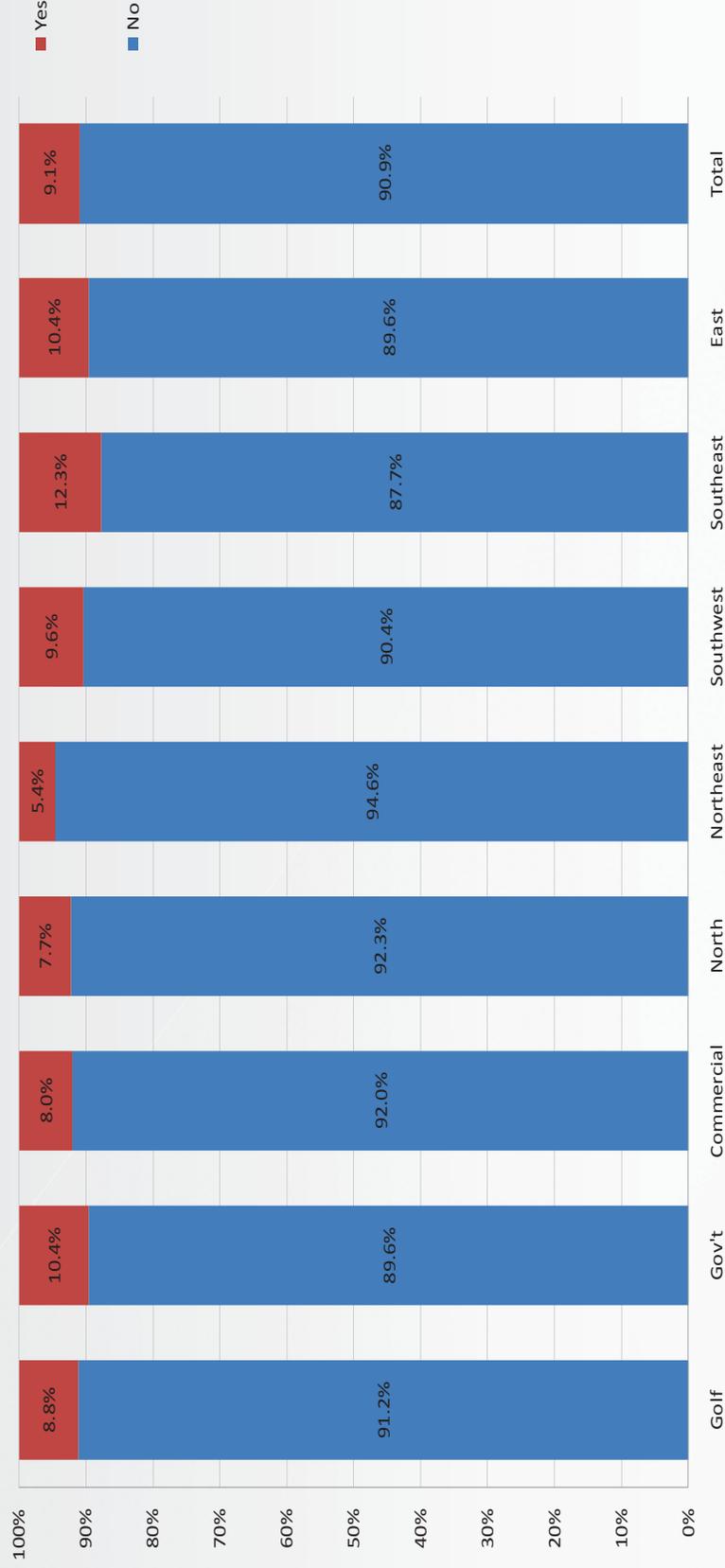
## Buyer’s Biggest Supplier of Turfgrass Seed

	Golf	Gov’t	Commercial	North	Northeast	Southwest	Southeast	East/ Transition	Total
Local Vendor / Distributor	67.5%	72.3%	75.0%	72.6%	75.7%	73.1%	71.4%	64.7%	71.6%
Local Retail Store	1.7%	2.5%	8.9%	2.7%	1.4%	3.0%	4.3%	10.3%	4.3%
Large Retail Store (Home Depot)	4.3%	0.8%	0.9%	1.4%	1.4%	1.5%	4.3%	1.5%	2.0%
Larger National Vendor (Dealer)	24.8%	23.5%	12.5%	19.2%	20.0%	22.4%	18.6%	22.1%	20.4%
Direct From Farm	1.7%	0.8%	2.7%	4.1%	1.4%	0.0%	1.4%	1.5%	1.7%
Sample Size	117	119	112	73	70	67	70	68	348

Ø The Buyer’s “Biggest Supplier” is a local vendor (72%) and then a larger national vendor (20%).

# Key Findings - Changing Buying Habits (Buyer's Vendors)

Has the Type of Supplier Used Changed Over the Past Few Years?



Ø Almost 1/10<sup>th</sup> (9%) of all Buyers have changed the type of vendor they purchase turf grass seed from over the past few years.

# Key Findings - Changing Buying Habits (Reseller's Customers)

## Resellers - Who They Sell To and Who is Their Biggest Customer *n = 103*

	All Customer Groups - Who They Sell To	Number One Customer
Golf Courses	60.2%	8.7%
Commercial Landscape Companies	60.2%	24.3%
Government / Schools	49.5%	10.7%
Sod Producers	16.5%	1.9%
Brokers, Distributors, or Resellers	31.1%	13.6%
Stores	43.7%	23.3%
Businesses	14.6%	4.9%
Professional Turf Grass Companies	1.9%	0.0%
Builders	5.8%	10.7%
Other	5.9%	1.9%

Ø In turn, Resellers are most likely to sell to Golf Courses (60%) and/or Commercial Landscape Companies (60%). However, Commercial Landscape Companies (24%) and Stores (23%) were identified most often as their biggest customer.

# Key Findings - Changing Buying Habits (Reseller's Species Sales)

Reseller Change in Species of Turfgrass Seed Typically Purchased				
	Ryegrass	Tall Fescue	Fine Fescue	Blue Grass
<b>Between 2008 to 2010</b>				
Increase	38.0%	23.1%	32.9%	35.2%
Decrease	35.0%	34.1%	47.1%	44.3%
Remain the Same	27.0%	42.9%	20.0%	20.5%
<b>Between 2010 to 2011</b>				
Increase	9.5%	1.1%	7.0%	17.6%
Decrease	46.3%	48.3%	58.1%	56.5%
Remain the Same	44.2%	50.6%	34.9%	25.9%
Sample Size	95	97	86	85

- Ø Almost ½ (47%) of Resellers claimed the amount of Fine Fescue they purchased declined between 2008 and 2010. This rate of decline will continue for Fine Fescue in 2010 and 2011 with over ½ (58%) of Resellers asserting their purchases will decrease.
- Ø For all the species considered, Blue Grass had the highest percentage of Resellers claiming their purchases will increase (18%) this next year. However, over ½ (57%) of these Resellers also asserted their

# Key Findings - Changing Buying Habits (Buyer's Species Purchases)

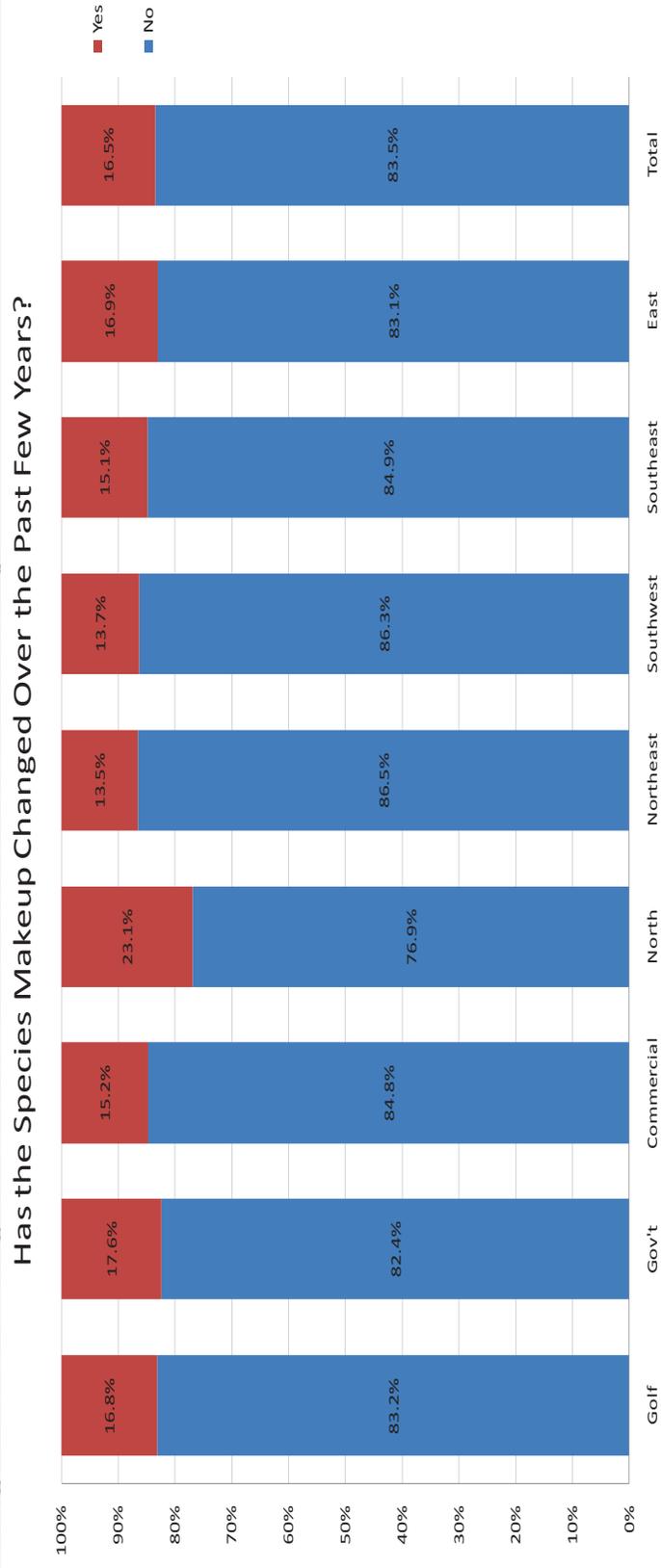
Species of Turfgrass Seed Typically Purchased By Buyers (Multiple Mentions)

	Golf	Gov't	Commercial	North	Northeast	Southwest	Southeast	East/T	Total
Ryegrass	66.4%	75.8%	79.5%	71.1%	72.6%	84.7%	76.7%	64.9%	73.9%
Tall Fescue	56.0%	23.4%	34.4%	28.9%	54.8%	26.4%	28.8%	49.4%	37.5%
Fine Fescue	21.6%	17.7%	18.9%	21.1%	32.9%	12.5%	9.6%	20.8%	19.4%
Blue Grass	44.0%	38.7%	31.1%	71.1%	67.1%	22.2%	11.0%	18.2%	38.0%
Bent Grass	7.2%	43.5%	8.2%	25.0%	23.3%	22.2%	6.8%	20.8%	19.7%
Other	16.0%	8.9%	13.9%	10.5%	9.6%	12.5%	19.2%	13.0%	12.9%

Sample Size 125 125 125 78 74 73 73 77 375

more than 1/3rd (38%) purchase Blue Grass and another 1/3rd (37.5%) buy Tall Fescue. Tall Fescue's importance in the Golf Segment is seen with 56% purchasing this species. The importance of the Northeast for Tall Fescue sales is confirmed with 55% claiming purchases. Blue Grass purchases were most frequent in the North (71.1%) and in the Northeast (67.1%).

# Key Findings - Changing Buying Habits (Buyer's Species Purchases)



Ø When Buyers were asked if the species makeup typically purchased had changed over the past few years, 17% of claimed it had.

Ø "Constantly changing varieties" , "trying new blends" , "not being able to consistently get the same mix" and, "trying different mixtures" to deal with weather / environmental threats were the major reasons cited on

## Key Findings – What’s Important

- ∅ What’s important to the channel members? How does that plus with an increasingly aggressive marketplace change things? Due to market pressure channel members are rethinking how they will compete.
- ∅ Differentiating factors – Relationships, distribution efficiency, locality, convenience, improved product quality / variety, packaging
- ∅ Branding – Re-emphasize the importance. Brand Equity is essential in a competitive market emphasizing price. If nothing else, it allows for price / perceived quality differentiation.
- ∅ Strategy-wise, understand what it truly means to compete and position one self successfully in the mature stage of the product life cycle – particularly

## Key Findings – what’s important? (Buyer and Reseller Key Drivers)

- ∅ To better understand what truly drives the decision process and motivates turfgrass seed purchases, a series of unaided and aided questions related to decision making criteria (e.g., key drivers) were asked to both Buyers and Resellers. First, both were asked: “Besides price and product quality, what is the one primary motivating factor in their company’s selection of turfgrass seed products” .

# Key Findings - What's Important? (Buyer and Reseller Key Drivers)

Resellers - Besides Price and Quality, What Other Major Factor Influences Decision (% of Total Mentions)	
Relationship With Vendors / Customer Service / Someone Recommended	23%
Product Demand / The Economy	21%
Competitive Pricing / Costs / Cheaper Product Opportunity	10%
Nothing But Price and Quality	10%
Brand Name / Company Recognition	8%
Better Product / Performance	7%
Specific Variety Needed	6%
Weather Related Issues - Droughts / Flooding	6%
Disease Tolerance	2%
Availability of Product / If They Have What is Needed	2%
Other	5%

Ø For Resellers, the relationship they had with vendors and product demand / the economy were mentioned most often. No other reason is cited half as much as these top two responses.

# Key Findings - What's Important? (Buyer and Reseller Key Drivers)

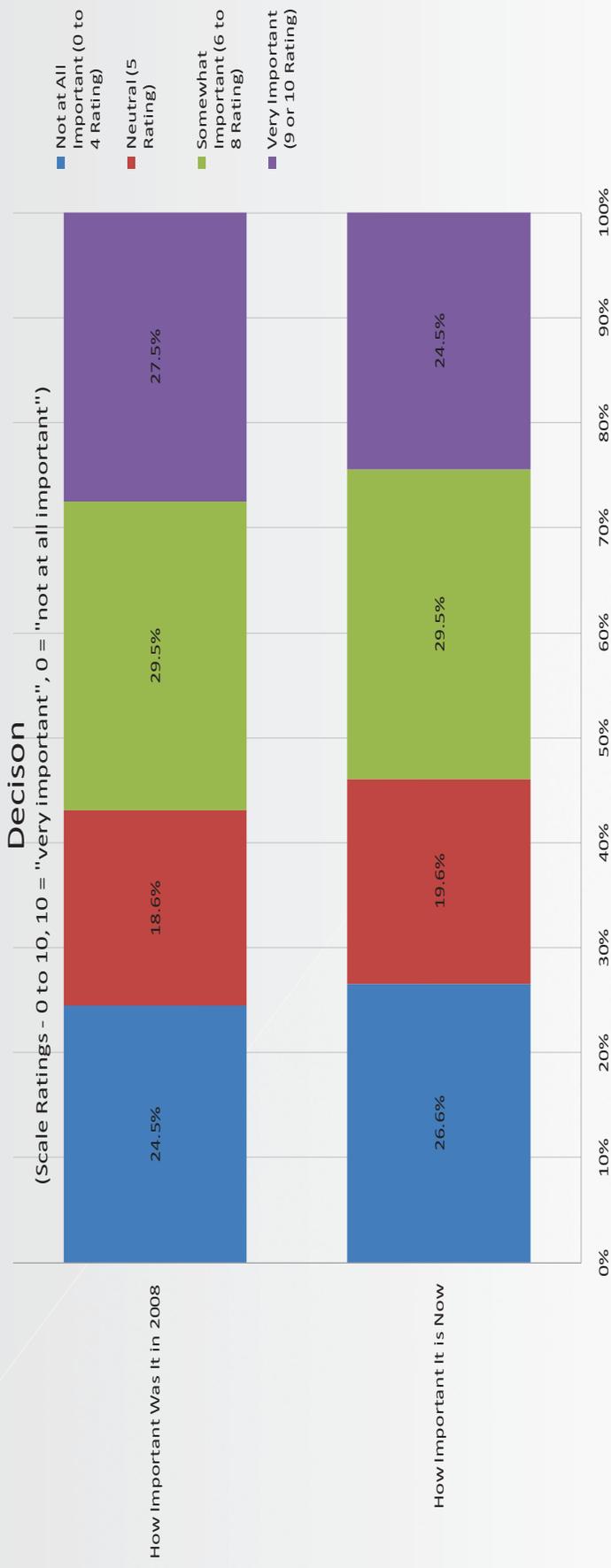
Buyers - Besides Price and Quality, What Other Major Factor Influences Decision (Number of Mentions)

Only Product Quality/Price	131	Drought Tolerance/Resistant	8
Customer Service/Good Relationship	50	Disease/Weed Resistant	7
Product Availability When Needed	37	Product Consistency	4
Delivery Time	27	Delivery Cost	3
Product Variety/Mix	17	Locally Grown	2
Vendor Knowledge	14	Coated/Fertilizer	2
Convenience to Purchase	13	Product Reliability	2
Germination Quality/Speed	13	Insect Resistant	2
Environment/Weather Tolerance	12	Oregon Grown	1
Vendor Location	11	Other Mentions	39
Product Durability	10		

✪ For buyers, besides their insistence that only product quality and price were important, vendor relationship and support, product availability, access (delivery time, location) and convenience were cited most often. "Made in Oregon" is only mentioned once.

# Key Findings – What’s Important – Resellers

How Important is Where the Turfgrass Seed Grown in Regard to a Buying



Ø Next, Buyers and Resellers were asked if where the turfgrass seed is grown is important regarding their purchase decision. One-fourth (25%) of Resellers asserted that location is “very important” (i.e., 9 or 10 importance rating) and almost ½ (46%) did not feel it is important at all or were neutral in their rating (5 rating). This rating has not changed between 2008 and 2010.

# Key Findings – What’s Important – Buyers

Buyers – How Important Is Where The Turfgrass Seed Is Produced/Grown – Now & 2008  
 (Scale – 0 to 10, 10 is “very important” and 0 is “not at all important”)

	Today - Rating					2008 - Rating				
	0 to 4	5	6 to 8	9 & 10	Avg.	0 to 4	5	6 to 8	9 & 10	Avg.
Golf	38.2%	22.0%	25.1%	14.6%	4.7	38.3%	22.8%	25.1%	13.8%	4.7
Government	32.8%	18.9%	27.1%	21.4%	5.4	33.6%	19.0%	26.7%	20.7%	5.3
Commercial	25.3%	23.8%	35.2%	15.6%	5.5	25.9%	25.0%	33.3%	15.9%	5.5
North	26.0%	24.7%	33.8%	15.6%	5.7	24.9%	26.3%	32.9%	15.8%	5.7
Northeast	34.3%	17.8%	35.6%	12.4%	4.9	35.1%	18.3%	35.3%	11.3%	4.8
Southwest	38.3%	22.1%	19.1%	20.6%	5.0	37.8%	22.7%	19.6%	19.7%	5.0
Southeast	28.8%	24.7%	31.5%	15.1%	5.1	31.4%	24.3%	28.6%	15.7%	5.0
East/ Transition	34.2%	18.4%	25.0%	22.4%	5.2	34.2%	19.7%	25.1%	21.1%	5.1
Total	32.3%	21.5%	29.1%	17.2%	5.2	32.5%	22.3%	28.4%	16.7%	5.1

within the Government segment felt that location is very important (e.g., 9 or 10 rating), while more than 1/2 did not feel it is important at all (1 to 4 rating) or provided a neutral importance rating (5 rating)

## Key Findings - Market Problems

- ∅ What are the major problems today facing channel members in selling / buying cool season turfgrass seed?
- ∅ Problems are tied to key drivers in selecting product options to some degree.
- ∅ Logistical issues including delivery cost / speed, product quality issues and pricing / market conditions were highlighted as most important problems through unaided mentions and supported with importance scale ratings.
- ∅ What Dealers considered to be important problems were not felt to be as important to Resellers and Buyers.

## Key Findings - Market Problems (Dealers)

- ∅ Through the exploratory and quantitative research efforts, Dealers clearly articulated the problems they felt were facing the market, industry and dealer group today. They cited many and varied problems. In fact, their lists were used as the primary source for the aided questions provided to the other channel members to rate in their surveys.
- ∅ Generally, Dealers feel:
  - ∅ There is a lot of misinformation in the marketplace today.
  - ∅ Market demand and over supply is radically affecting the market particularly when it comes to competitive pricing and existing customer relationships.
  - ∅ The channel power is shifting down the channel closer to the customer and changing how Dealers operate.

## Key Findings - Market Problems

### (Dealers)

- ∅ There is little barrier to entry into selling product. Others have an opportunity to take advantage of the current market situation.
- ∅ Distributors are disappearing with customers seeking new vendor options (e.g., mass merchandisers, buying directly from growers, etc.).
- ∅ New product development activities are common with new solutions quickly copied and unprotected.
- ∅ New competitive threats (e.g., artificial turfgrass, the green movement, etc.) are influencing the marketplace.
- ∅ Brand equity provided by the Oregon brand may be eroding.

# Key Findings – Market Problems (Resellers)

Resellers – Biggest Problem / Issue in Buying / Selling Turfgrass Seed Today – Unaided (% of Total Mentions)

Product Quality Issues	16%	Product Availability	8%
No Major Problems	12%	Competition	8%
Logistic Issues – Splitting Orders, etc.	11%	Satisfying Buyers	3%
Pricing / Low and Unstable Margins	10%	Getting Paid	2%
Market Demand / The Economy	10%	Weather	1%
Market Uncertainty	9%	Other	1%
Delivery Cost	8%	Don't Know	1%

Ø When Resellers were asked their company's major problem / concern is, three major themes emerged: market issues (e.g., demand/economy/uncertainty combined); logistics / delivery issues / costs; and product quality / application issues.

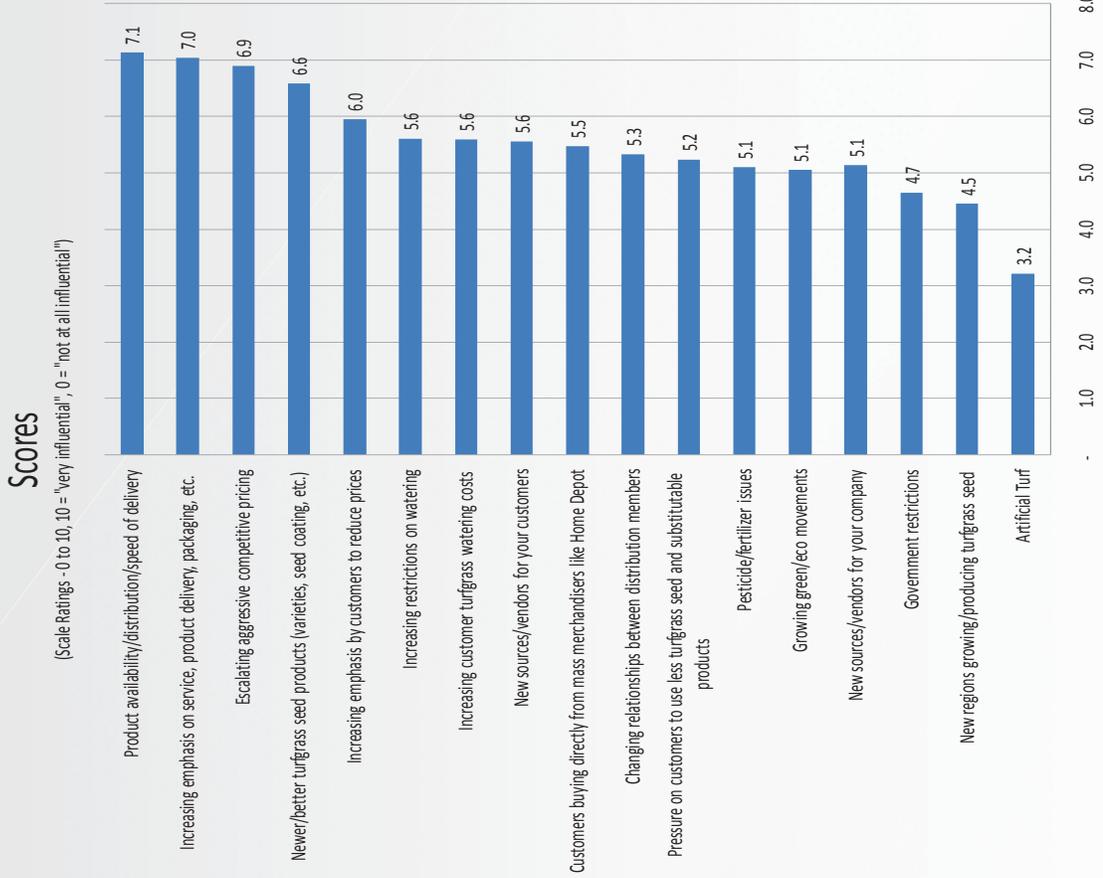
## Key Findings – Market Problems (Resellers)

- ∅ When provided a list of possible problems, Resellers selected these as having the most influence: “product availability / distribution / speed of delivery” , “increasing emphasis on service / product delivery / packaging” , “escalating aggressive competitive pricing” , and “newer / better turfgrass seed products (varieties, coating, etc.).”
- ∅ With 41% of Resellers providing a top-box 9 or 10 rating, “product availability / distribution / speed of delivery” is clearly the number one issue with “the increasing emphasis on service, product delivery and packaging, etc.” coming in second.
- ∅ “Artificial turf” , “new regions growing / producing turfgrass seed” , and “government restrictions” were identified by Resellers as their least concerns / issues.

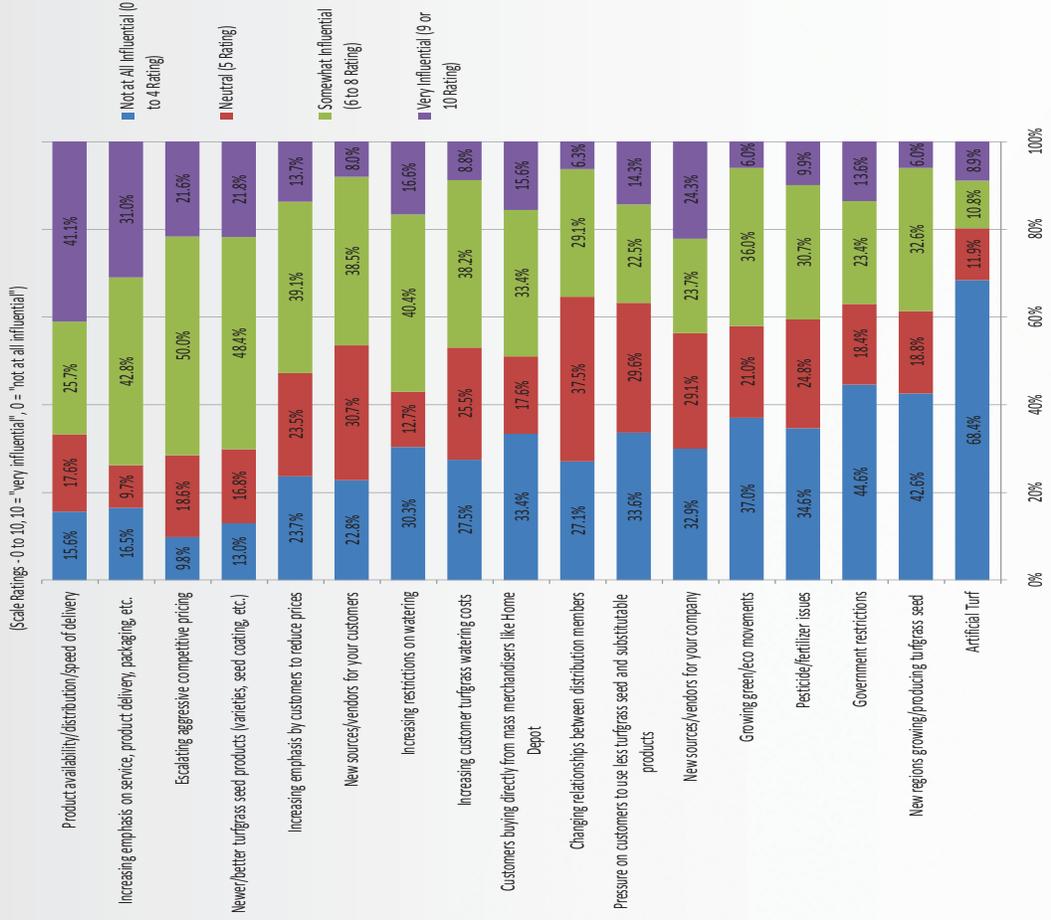
# Key Findings - Market Problems

## (Resellers)

### Major Influences on Turf Grass Seed Selling Habits - Average



### Major Influences on Turf Grass Seed Selling Habits



# Key Findings – Market Problems

## (Buyers)

- ∅ Buyers were provided a similar lists as Resellers and asked to rate how influential certain problems / issues were to their company regarding the buying / selling of turfgrass seed. “Competitive pricing” and “product availability / distribution / speed of delivery were most influential while “watering restrictions”, “pressure to use turfgrass seed and / or substitutable products”, and “new options on where and who to buy products” were least influential.
- ∅ By region, “watering costs and restrictions” had a stronger influence in the Southwest and “new options on where / who to buy” as well as “changing internal budgets” had a smaller impact in the Northeast. By segment, “increasing turfgrass seed watering costs” is more important to the Government. “Changing internal budgets” and “growing area/econ movements”<sup>45</sup> became

# Key Findings – Market Problems (Buyers)

## Major Influences on Turf Grass Seed Buying Habits

(Scale Average Ratings – 0 to 10, 10 = “very influential”, 0 = “not at all influential”)

	Golf	Gov’ t	Commerci al	North	Northeast	Southwe st	Southea st	East / Tran s	Tota l
Product availability/distribution/ speed of delivery	7.9	7.5	7.5	7.7	7.5	7.8	7.5	7.5	7.6
Increasing turfgrass watering costs	5.7	6.2	5.7	5.4	5.3	6.9	5.7	6.1	5.9
Watering restrictions	5.2	5.3	5.6	4.6	4.7	6.8	5.8	5.1	5.4
Pressure to use less turf grass seed and/or substitutable products	3.9	4.2	4.2	4.0	3.9	4.2	4.0	4.3	4.1
Competitive pricing	7.9	7.7	8.0	7.9	7.8	8.0	7.8	7.9	7.9
Newer/better turfgrass products (varieties, seed coating, etc.)	6.6	7.1	6.9	6.8	6.9	6.9	6.6	7.2	6.9
New options on where and who to buy products	4.7	5.1	5.3	5.0	4.4	5.2	5.3	5.4	5.0
Changing internal budgets	6.0	6.7	7.2	6.4	5.8	7.1	6.8	7.0	6.6
Growing green/eco movements	5.5	5.8	6.3	5.9	5.8	6.3	5.4 <sup>46</sup>	5.8	5.9

# Key Findings - Market Problems (Buyers)

- ∅ Examining top-box scores (9 and 10 ratings) across segments and regions provides more insight.
- ∅ By segment: “product availability....” is more important to the Golf Segment; “increasing watering costs” and “newer / better products” is more important to the Government Segment”; while, “changing internal budgets” is more important to the Commercial Segment.
- ∅ By region: “increasing watering costs” is more important to the Southwest Segment and less important to the North Segment; “product availability.....” is more important to the Southeast Segment”; while, “watering restrictions” is more important to the North and Northeastern Segments and “pressure to use less turfgrass seed” is less important to the North Segment.

# Key Findings – Market Problems

(Rivers)

## Major Influences on Turf Grass Seed Buying Habits

(Bottom Box 0 to 4 Ratings, Scale – 0 to 10, 10 = “very influential”, 0 = “not at all influential”)

	Golf	Gov't	Commercial	North	Northeast	Southwest	Southeast	East/Trans	Total
Product availability/distribution/speed of delivery	7.2%	9.6%	8.4%	6.5%	12.3%	4.2%	4.2%	11.8%	7.7%
Increasing turfgrass watering costs	28.4%	26.5%	29.6%	30.7%	36.2%	15.7%	32.9%	24.9%	28.2%
Watering restrictions	36.1%	36.0%	29.7%	40.3%	43.3%	16.8%	27.9%	40.7%	34.0%
Pressure to use less turf grass seed and/or substitutable products	50.0%	44.0%	46.8%	43.6%	50.1%	43.6%	49.9%	47.3%	46.9%
Competitive pricing	6.4%	9.6%	3.2%	6.5%	2.8%	5.6%	7.1%	9.1%	6.3%
Newer/better turfgrass products (varieties, seed coating, etc.)	17.9%	12.2%	19.6%	12.9%	12.3%	9.8%	19.1%	12.3%	13.3%
New options on where and who to buy products	36.9%	29.3%	27.2%	31.2%	42.4%	27.9%	29.2%	24.9%	31.1%
Changing internal budgets	27.5%	15.4%	13.6%	19.8%	26.7%	14.0%	19.2%	14.4%	18.8%
Growing green/eco movements	29.9%	26.4%	18.9%	24.6%	24.6%	23.6%	32.0%	21.7%	25.9%
Sample Size	120	125	122	76	73	72	72	74	367

## Key Findings - Changing Buying Habits

- ∅ Because of changing market / buyer expectations surviving channel members will have to refocus their efforts to remain competitive.
- ∅ New places to buy / low barriers of entry lead to new players, changing channel dynamics, new markets, a shift in the consumer attitude (growing emphasis on DIY, etc.) due to changes in the economy / marketplace create new opportunities.
- ∅ New Resellers - elimination of steps in distribution to remain price competitive (Dealers over Distributors), intense competition across Distributors, and a continued growing influence of the mass merchandiser.
- ∅ The Challenge of Price and the need to redefine

## Key Findings – Market Solutions

- ∅ How can the Oregon turfgrass seed industry help? What programs and strategies do channel members feel the industry should focus their energy and time?
- ∅ Certain channel members are torn regarding government / council / commission/ association involvement in regard to certification programs for new product development, pricing, product quality and market entry.
- ∅ There appears to be need for better reporting of market data, industry news, turfgrass benefits, etc.

## Key Findings - Market Solutions

### (Dealers)

- ∅ Dealers were asked for suggestions on how the Oregon Turfgrass Seed Council could help their company be more successful.
- ∅ Responses varied, but some common themes were:
  - ∅ Dealers expressed concern that growers enter the dealer business.
  - ∅ Several want industry promotion to combat the negative environmental image of turfgrass.
  - ∅ A few think spending funds to promote Oregon turfgrass is a wasted effort and the Council should do less.
  - ∅ Some wanted the Council to provide a consistent perspective with accurate industry and production information / data.

# Key Findings - Market Solutions

## (Resellers)

- ∅ Resellers and Buyers were also asked in both an unaided and aided fashion what the Oregon Turfgrass Seed Council could do to help their companies be more successful.
- ∅ For Resellers, major themes emerged from their unaided comments:
  - ∅ Education – to a variety of audiences with many different messages using myriad of devices
  - ∅ Manage the market chaos somehow, pricing, large institutions getting more involved, etc.
  - ∅ Research on better quality and new varieties
  - ∅ More interaction at a regional and local level
  - ∅ Some efforts politically and from a public relations standpoint (i.e., focused on government intervention regarding various issues like product quality

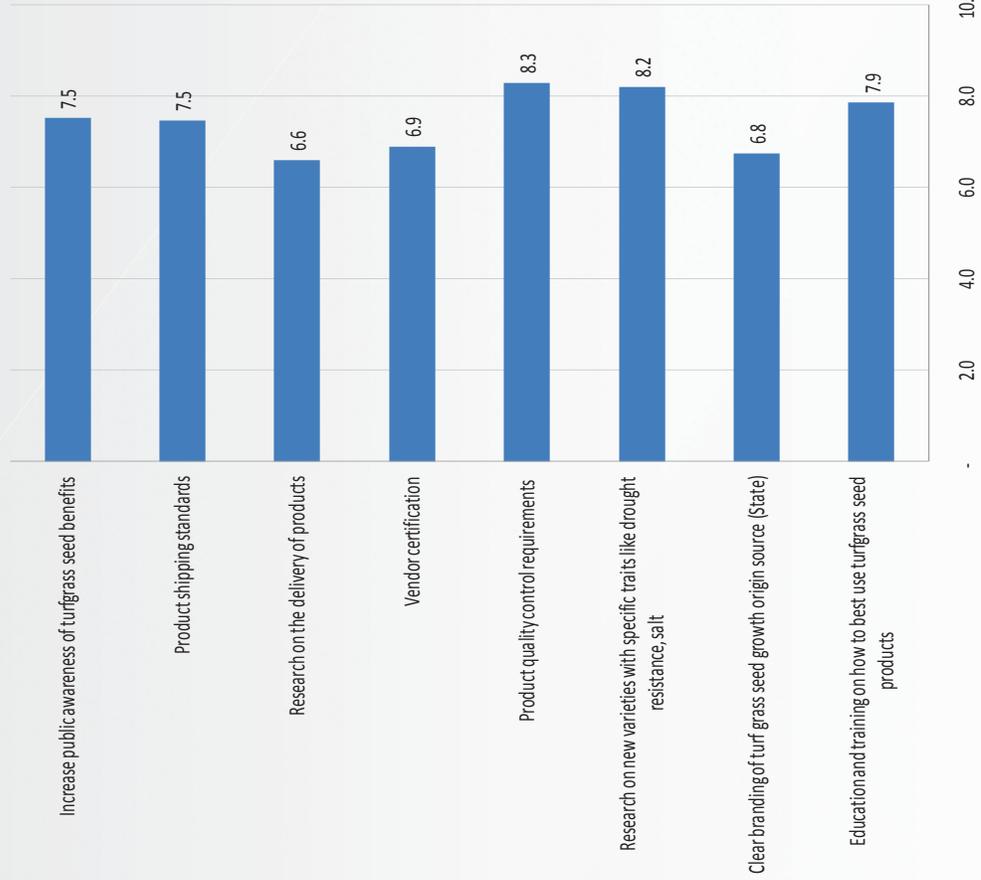
## Key Findings - Market Solutions (Resellers)

- Ø From an aided standpoint, Resellers felt the most important program options the OSC could pursue included: “Product quality control requirements”, “Research on new varieties with specific traits”, and “Education and training on how to best use products”.
- Ø In examining the actual ratings, almost 50% provided a “very important rating” to “product quality control requirements” and “research on new varieties”(ranked first and second, respectively).

# Key Findings - Market Solutions (Resellers)

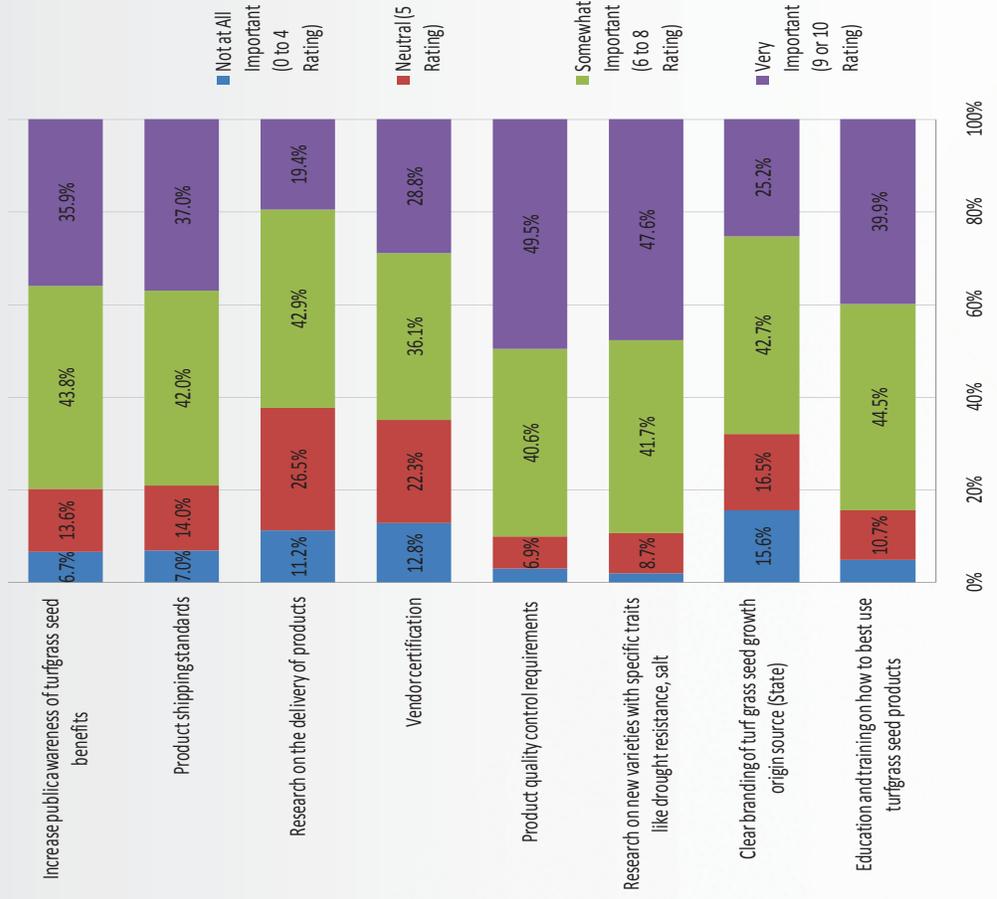
Possible OSC Program Options - Average Ratings

(Scale ratings - 0 to 10 = "Very important", 0 = "not at all important")



Possible OSC Program Options

(Scale ratings - 0 to 10 = "Very important", 0 = "not at all important")



## Key Findings – Market Solutions

### (Buyers)

- ∅ Buyers unaided responses were varied and many. The largest number of responses that were not “don’t know” or OSC “can’t help us” or “don’t do anything” focused on:
  - ∅ Reducing prices/managing costs
  - ∅ Providing education on a variety of subjects (e.g., use and application, product specific information, where to buy, industry updates, etc.) to a variety of audiences (industry, distribution, etc.)
  - ∅ Continue creating better products through research (e.g., improve product quality, generate new varieties, focus on weed, drought, heat resistance, etc.)
  - ∅ Supply more information in a variety of ways (website, newsletter, emails, direct marketing<sup>55</sup>etc.).

# Key Findings – Market Solutions

(Buyers)

## Buyers – Possible OSC Program Options

(Scale Average Ratings – 0 to 10, 10 = “very important”, 0 = “not at all important”)

	Golf	Gov't	Commercial	North	Northeast	Southwest	Southeast	East/ Trans	Total
Education and training on how to best use turfgrass seed products	6.9	7.4	7.6	7.7	7.5	7.0	7.1	7.1	7.3
Clear branding of the product's origin (country/state)	6.1	7.4	7.3	6.9	7.0	6.7	6.9	7.1	6.9
Research on new varieties with specific traits like drought resistance, salt tolerance, cold hardy, etc.	8.1	8.5	8.1	8.3	8.2	8.2	8.0	8.4	8.2
Product quality control requirements	8.2	8.2	8.0	8.2	8.1	8.1	8.2	7.9	8.1
Certification of first-level seed sellers	7.0	7.6	7.3	7.5	7.0	7.3	7.3	7.4	7.3
Research on the delivery of products	5.2	6.3	6.2	6.4	5.4	5.7	6.1	5.9	5.9
Product shipping standards	6.2	6.9	6.6	6.9	6.4	6.5	6.4	6.7	6.6
Increase public awareness of turfgrass seed benefits	6.2	7.0	6.6	7.1	6.4	6.4	6.4	6.7	6.6
Sample Size	125	125	125	78	73	73	73	76	374

important options OSC should pursue included:

“Research on new varieties with specific traits” ,

“Product quality control requirements” , “Education and training on how to best use products” and “Certification of first-level seed sellers”

# Results – Buyers, What Can be Done

## Possible OSC Program Options

(Scale Average Ratings – 0 to 10, 10 = “very important”, 0 = “not at all important”)

	Golf	Gov't	Commercial	North	Northeast	Southwest	Southeast	East/ Trans	Total
Education and training on how to best use turfgrass seed products	6.9	7.4	7.6	7.7	7.5	7.0	7.1	7.1	7.3
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Sample Size	125	125	125	78	73	73	73	76	374

## Final Thoughts

- ∅ The industry is changing in a natural progression toward maturity. To successfully compete, focus on:
  - ∅ Developing core competencies based on the changing needs of target markets (i.e., Buyers) as well as the natural evolution of change occurring across the channel.
  - ∅ Buyers needs: price, quality, relationships, availability of product, convenience / location, distribution time and cost, etc.
  - ∅ Channel changes – elimination of levels, vertical integration, new members, shifts in whose really in charge – now and in the future
- ∅ Constantly look for new opportunities
  - ∅ Markets (export, consumer, etc.) , new product development (public and private), vertical integration strategic alliances market issues

## Final Thoughts

- ∅ The further up the channel you go (toward growers), the more sensitive players are to industry change / issues.
- ∅ Some things viewed as a problem, may not be as important of problem today, but is something to track and be sensitive about over time.
- ∅ Be proactive and not reactive.
- ∅ Have to keep on top of the industry overtime, real time.
- ∅ Systematically collect, analyze, disseminate information and adapt and plan accordingly.

## Final Thoughts

- ∅ So what can the industry support groups do?
  - ∅ Unify – Too much fragmentation, get on the same page.
  - ∅ One voice with the powers to be.
  - ∅ Come to some kind of agreement - Identify and develop a platform of understanding if not agreement.
  - ∅ Carry a bigger stick.
  - ∅ Represent the State (if not the nation) with one voice.
  - ∅ Unite with other State agriculture groups having common interest for representation and funding.
- ∅ Leverage and focus on Brand Equity.
  - ∅ Go National – assume your role and take it<sup>60</sup>

## Final Thoughts

- Ø Re-educate and remind Buyers.
- Ø Strong Brand Equity will address pricing issues in the maturity stage.
- Ø Grown in Oregon program
  - Ø Certification and Branding
- Ø Establish boundaries / role of government (State and national)
  - Ø Certification, product quality, market entry, new product development and research
- Ø Marketing
  - Ø Mature stage of the product life cycle – act according
  - Ø Communication – inform, educate, promote, lobby
  - Ø Pricing – Certification, branding, brand equity,

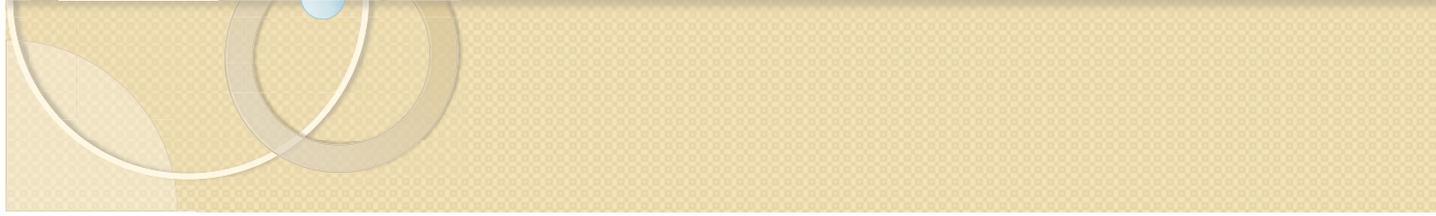
## Final Thoughts

- ❏ Distribution - Deal with added costs to buy from Oregon than other competitive sites (Minnesota, Missouri, etc.).
- ❏ Product – Support private development, determine relationship between private and public. Address packaging and labeling issues. Determine affect of labeling (brand equity) on product assortment.
- > Unify, Proactive, Be Aggressive, Embrace Change, Be Systematic
  - ❏ One-voice, One message
  - ❏ Common platform, Shared on-going knowledge
  - ❏ Real-time Decision Making
  - ❏ Carry a bigger stick
  - ❏ Assume the role (national force) and take it

**S23 Sustainability Certification for Christmas Trees with Oregon State University, North  
Willamette Research and Extension Center**

*Attachment 1: Certification Overview*

# SERF Certification-Overview

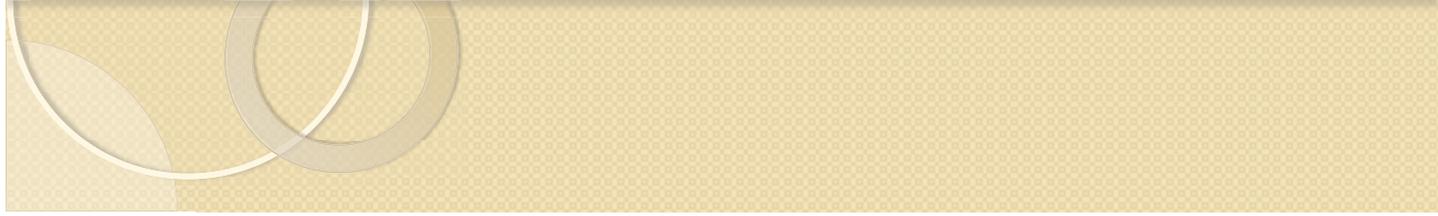


# Certification- What is involved?

- Classes- Alt TH. Until we have covered each section.
- Currently have 4/21 afternoon reserved for a demo inspection with Taylor McMillan- ODA
- IPM farm worker training coming w/ Luisa Santamaria
- Who will inspect - OR. ODA Commodities Div., WA-WSDA is evaluating need and personnel.



# A view of a SERF Certification class session



# What will an inspection entail?

- Perhaps a cross between a job interview and an IRS audit
- There are 3 types of “Evidence” required
  - Site Inspection/ Interviews
  - Sustainability Plan
  - Review of existing records
- Scoring
  - 2 categories of Importance- High (5): Moderate (3)
  - High- Must fully “pass” 11 of 12
  - Moderate- fully pass 10 of 12

# Beginning your plan

- Let's begin at the beginning
  - Don't get overwhelmed
  - Chip away at parts of this as time allows
- It is more than a “paper chase” and likely will require on-the- ground changes.
- Record keeping critical- Who/What/Where/When/ etc.
- Pgs. 6-7 in template booklet
- There will also be an ODA application form of that will repeat much of the Farm Information
- How much of the ownership might be included?
  - Must keep tagging separate; and ID area.

# Bio-Diversity

- Mapping, Protection Measures taken, knows wildlife species
- Invasive species controlled (or best attempt)
- Any T & E species???
- Any natural or special areas are identified on maps
- Good maps and photos show what is going on and what might be done in future.

ABC Tree Farm  
Red outline

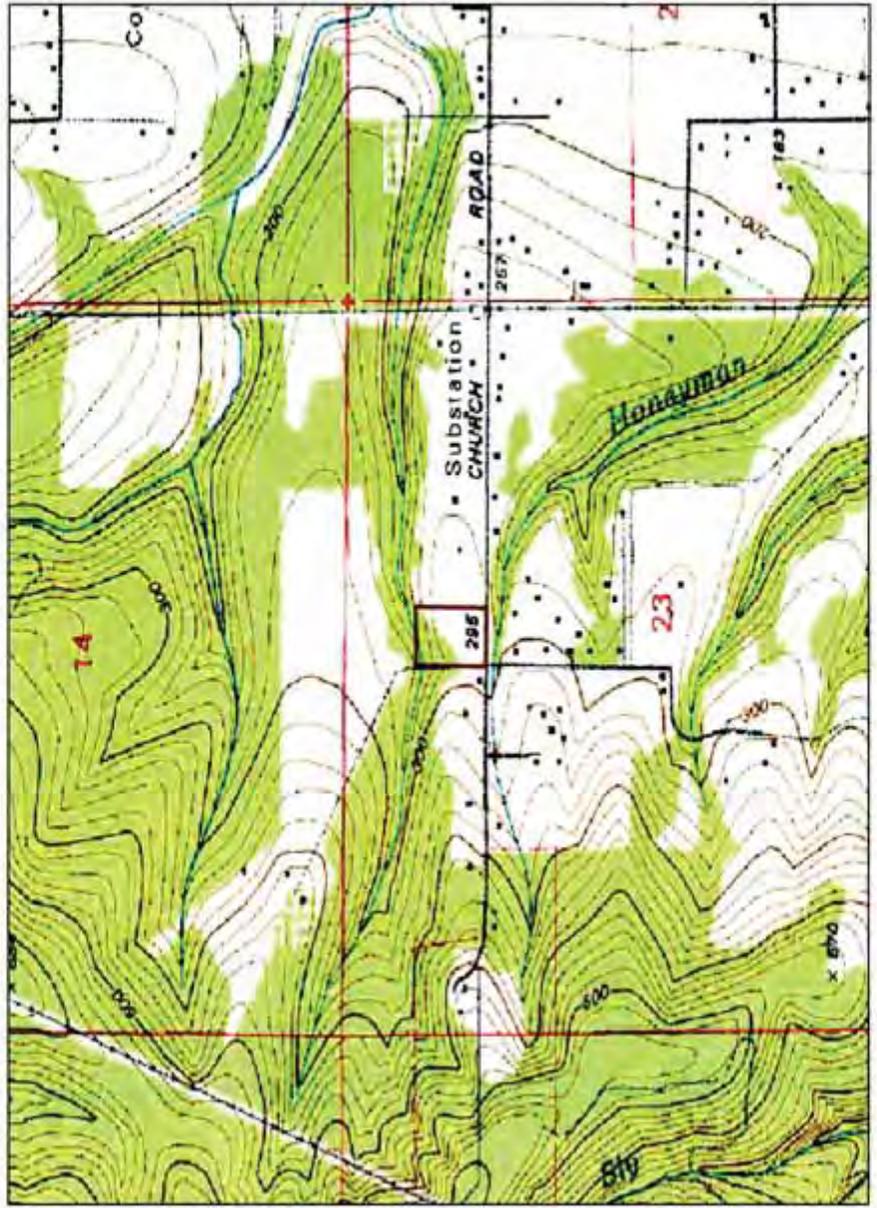


ST. HELENS SERVICE CENTER  
USDA - NRCS  
COLUMBIA COUNTY, OREGON

CHAL LANDGREN

Columbia County SWCD  
Approximate Acres: 6.0  
Date: 6/1/2005

# 7.5 Min. Topo Map



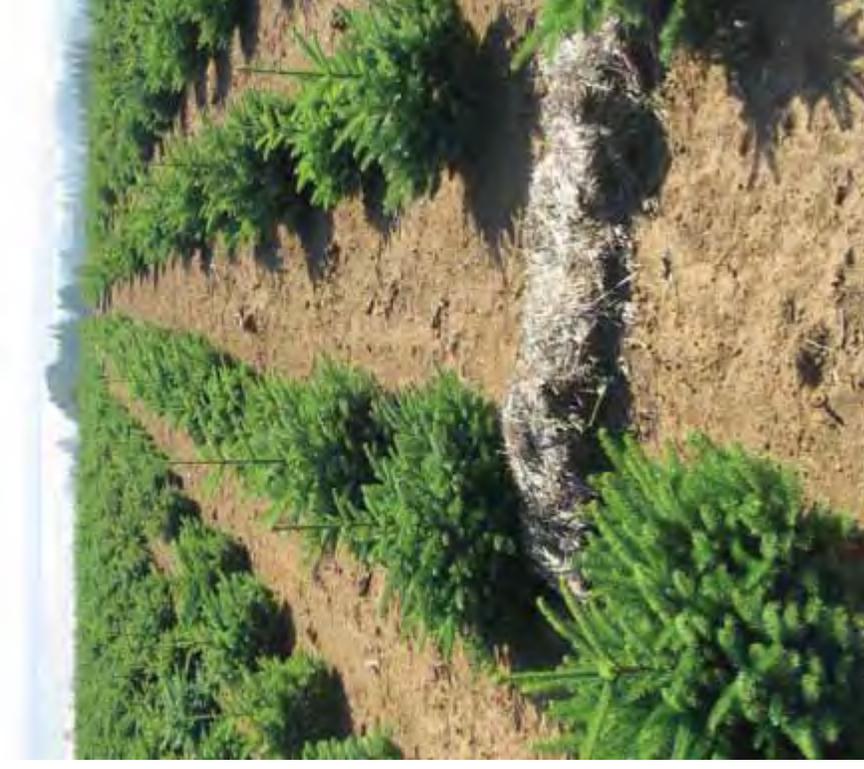
**Legend**

- Tract Boundary



# Soil and Water Resources

- Monitoring records
- Plans to control and minimize erosion
- Water quality is protected





# IPM COMPONENT

- Training, Records, Evidence, Safety..
- field workers better at scouting and Integrated Pest Management principles, important element for the certification program.



# SERF –Socially and Environmentally Responsible Farm

- Classes have concluded- 18 participants
- 2 SERF farm plans have been completed
- IPM Cards are nearly complete.
- Training in July

Field Inspections



Review of Plan and Storage



# The Trail Inspection

hangtags



## PERFORMANCE MEASURES



### **Bio-Diversity**

Protect and promote bio-diversity. Performance measures include protecting natural features, water ways, fish and wildlife habitat and ensure that workers and equipment minimize harm to bio-diversity.



### **Soil and Water Resources**

Actively involved in long-term conservation of soil and water resources. Performance measures include utilizing soil erosion prevention practices and implementing protective measures to mitigate potential negative impact of farm activities on water quality.



### **Integrated Pest Management (IPM)**

Utilizes appropriate IPM techniques to control insects, weeds, diseases and other pests. Performance measures include training in IPM systems and providing evidence of utilizing IPM in decisions and actions.



### **Health and Safety**

Create a safe working environment for all employees and contractors. Performance measures include health and safety training is provided to all employees and risks on the farm are evaluated and training and practices are updated to mitigate identified risks.



### **Community and Consumer Relations**

Active in the community and with industry groups in fostering farm stewardship and environmental education. Performance measures include involvement with community and industry organizations to preserve, protect and conserve natural resources. Promote environmental and sustainability education.



*“Choosing a real Christmas tree is an environmentally conscious choice because of the way they are grown. In fact, many trees are grown in soil that won't support other crops.”*

**Mike Bondi,**

*Professor and Extension Faculty  
Oregon State University's College of Forestry*



[SERFcertified.org](http://SERFcertified.org)



## The Northwest's Sustainable Christmas Tree Production Program

*Giving Wholesale and Retail Customers Assurance of Responsible Farming Practices.*





# In- field IPM training in Spanish



# Links to SERF media coverage

<http://www.kval.com/news/local/its-a-greener-Christmas-tree--135863358.html?tab=video>

<https://www.facebook.com/WhitewaterRanch>

<https://www.facebook.com/SpringCreekHollyFarm>

<http://www.serfcertified.org/about.html>



# Examples of media

## Update on Certification

by Chad Lamborn, Oregon State University Extension Christmas Tree Specialist

**U**nder the Sustainable and Environmentally Responsible Farm (SERF) program, Washington supports a balanced economic, social and environmental sustainable Christmas tree operation. Each farm will develop a Sustainability Plan including activities in the five major areas. The farm must demonstrate to an inspector/prospect that the plan is being used, explained and followed in all phases of operations. Inspectors will include all farm personnel (employees, family, contractors) involved in operating the tree farm.

As with other certification systems, SERF will involve 1) demonstrated commitment to a suite of practices that demonstrate conservation of natural resources and also provide for the development of a well-written Sustainability Plan and, 2) a commitment to worker

health, safety and training education. The inspectors will be from ODA and regularly WACA.

The five areas mentioned above and the goals under each in the Sustainability Plan are:

- 1) Certified farms protect and promote job diversity.
- 2) Certified farms use existing, needed and long term conservation of soil and water resources.
- 3) A certified farm maintains operation of a tree farm in a natural forest, which does not alter the forest.
- 4) Certified farms create a safe working environment for all employees with commitment to safety.
- 5) A certified farm is active in the community and with industry groups by holding farm open house and environmental education.



**WE NEED YOU**

The next step in the process is to find willing participants to develop their plans, get inspections and then "legitimize" some of these participants will become the first "tree farm" to receive certification under the SERF program.

Are you interested in becoming certified? The first class to work on your Sustainability Plan begins on Thursday, March 3, 2011 at 1:00 p.m. at the North Willamette Forest and Extension Center, 43 Astoria, OR. Classes will be scheduled every other week on Thursdays.

To get on the list, please give me a call at (503) 325-1212 (EXT. 142) or email at [chad.lamborn@oregonstate.edu](mailto:chad.lamborn@oregonstate.edu) with input from the file.

Pacific Northwest Christmas Tree Association

## SHORT COURSE

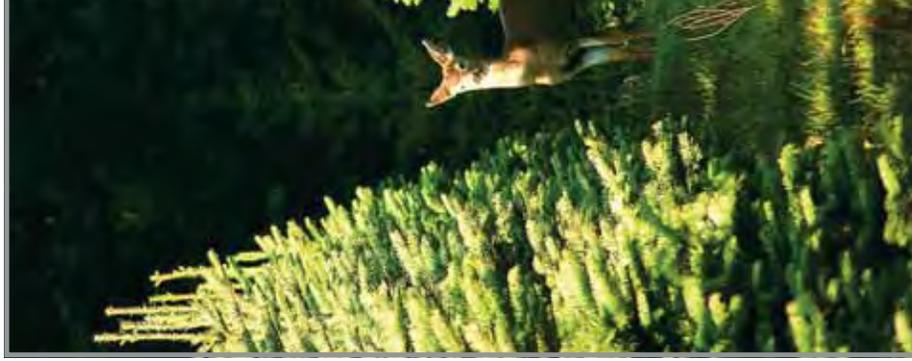
Why you should attend this year's Short Course:

To succeed in producing and selling quality Christmas trees takes more than just skill and knowledge. It takes commitment to continually hone your skills, and to your knowledge base and use the knowledge of your trade to the most effective and efficient manner possible.

## FEBRUARY 25, 2011

Vancouver Hilton  
Vancouver, Washington

18 CHRISTMAS TREESOCIETY



**SERF**

**Grower Certification Guidelines for SERF**

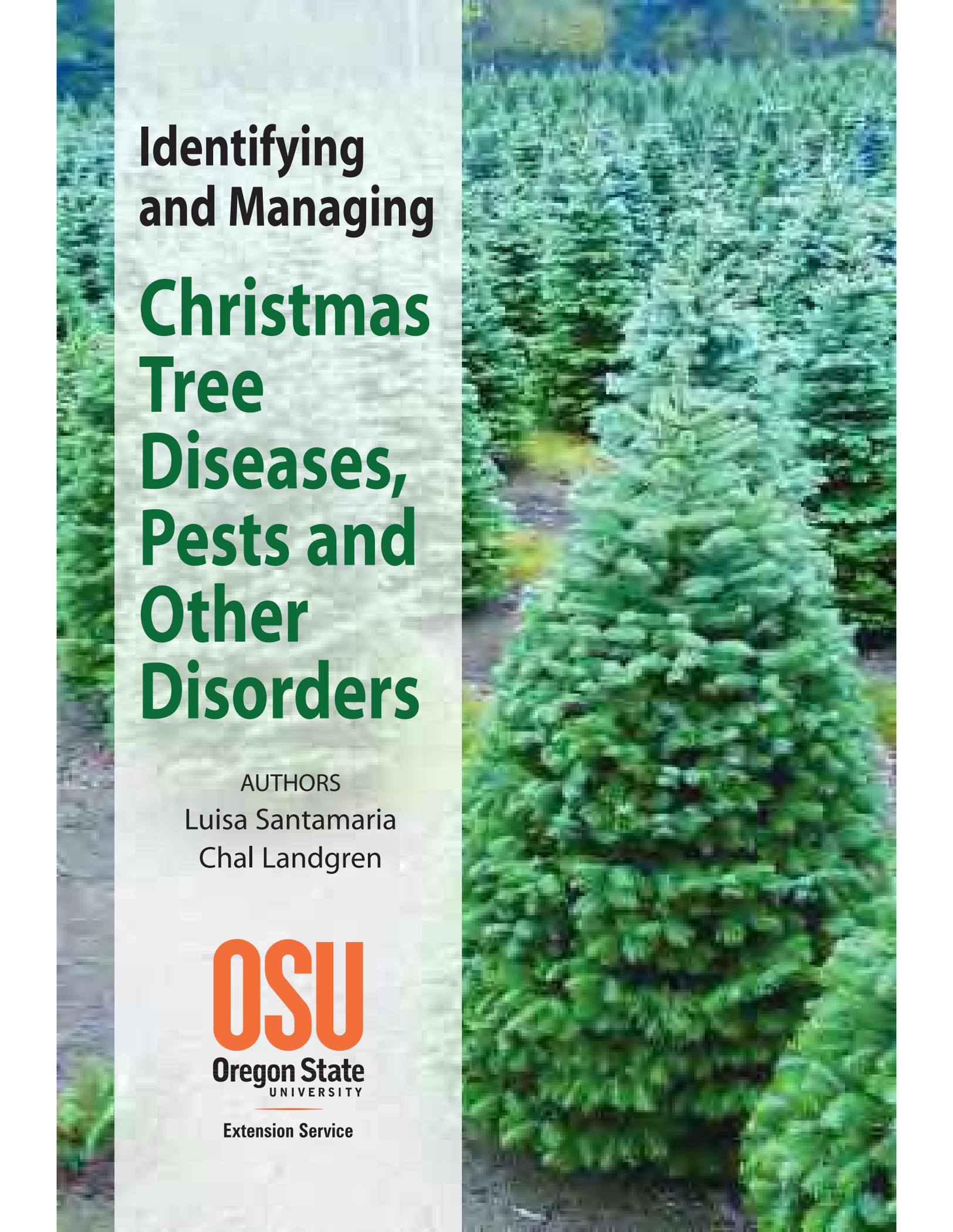
Socially and Environmentally Responsible Farm (SERF) Sustainability Plan

# Developing a Sustainability Plan for Your Christmas Tree Farm

— SPONSORED BY —



Oregon Department of Agriculture  
Washington Department of Agriculture



# Identifying and Managing Christmas Tree Diseases, Pests and Other Disorders

AUTHORS

Luisa Santamaria  
Chal Landgren

**OSU**  
Oregon State  
UNIVERSITY

Extension Service

# ACKNOWLEDGEMENTS

## AUTHORS

Luisa Santamaria–Assistant professor, Nursery Crops - Extension  
Plant Pathologist, Oregon State University, NWREC, Aurora, OR.  
luisa.santamaria@oregonstate.edu

Chal Landgren, Christmas Tree Specialist and Professor,  
Oregon State University, NWREC, Aurora, OR.  
chal.landgren@oregonstate.edu

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Carla Garzon–Oklahoma State University, OK

Kathy Riley–Washington State University, Puyallup, WA

Helmuth Rogg–Oregon Department of Agriculture, Salem, OR

Robin Rosetta–OSU Extension, NWREC, Aurora, OR

David Shaw–OSU Extension, Corvallis, OR

Cathy E. Thomas–Pennsylvania Department of Agriculture, PA

Luis Valenzuela–Horticulture Dept, OSU, Corvallis, OR

Graphic designer–Kim Minten, Minten Graphics



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# Identificación y Manejo

## Enfermedades, Insectos y otros Desórdenes en Árboles de Navidad

AUTORES

Luisa Santamaria  
Chal Landgren



Extension Service

# AGRADECIMIENTOS

## AUTORES

Luisa Santamaria–Assistant professor, Nursery Crops - Extension  
Plant Pathologist, Oregon State University, NWREC, Aurora, OR.  
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# Enfermedades, Insectos y Otros Desórdenes en Árboles de Navidad

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**S24 Role of Fresh Sweet Cherries in Modulating Biomarkers of Cancer Risk among males at risk for Prostate Cancer with the Oregon Sweet Cherry Commission**

*Attachment 1:* PowerPoint presentation by researcher, Lindsey Diemert RD, CDE

*Attachment 2:* Final Manuscript by researcher, Lindsey Diemert RD, CDE

# A SWEET CHERRY FEEDING TRIAL IN HEALTHY, OVERWEIGHT MALES:

Anthocyanin bioavailability and  
inflammatory biomarker response

Lindsey Diemert RD, CDE



# Outline

 Prostate Cancer

 Incidence and progression

 Inflammation

 Obesity

 Cherries and Cancer

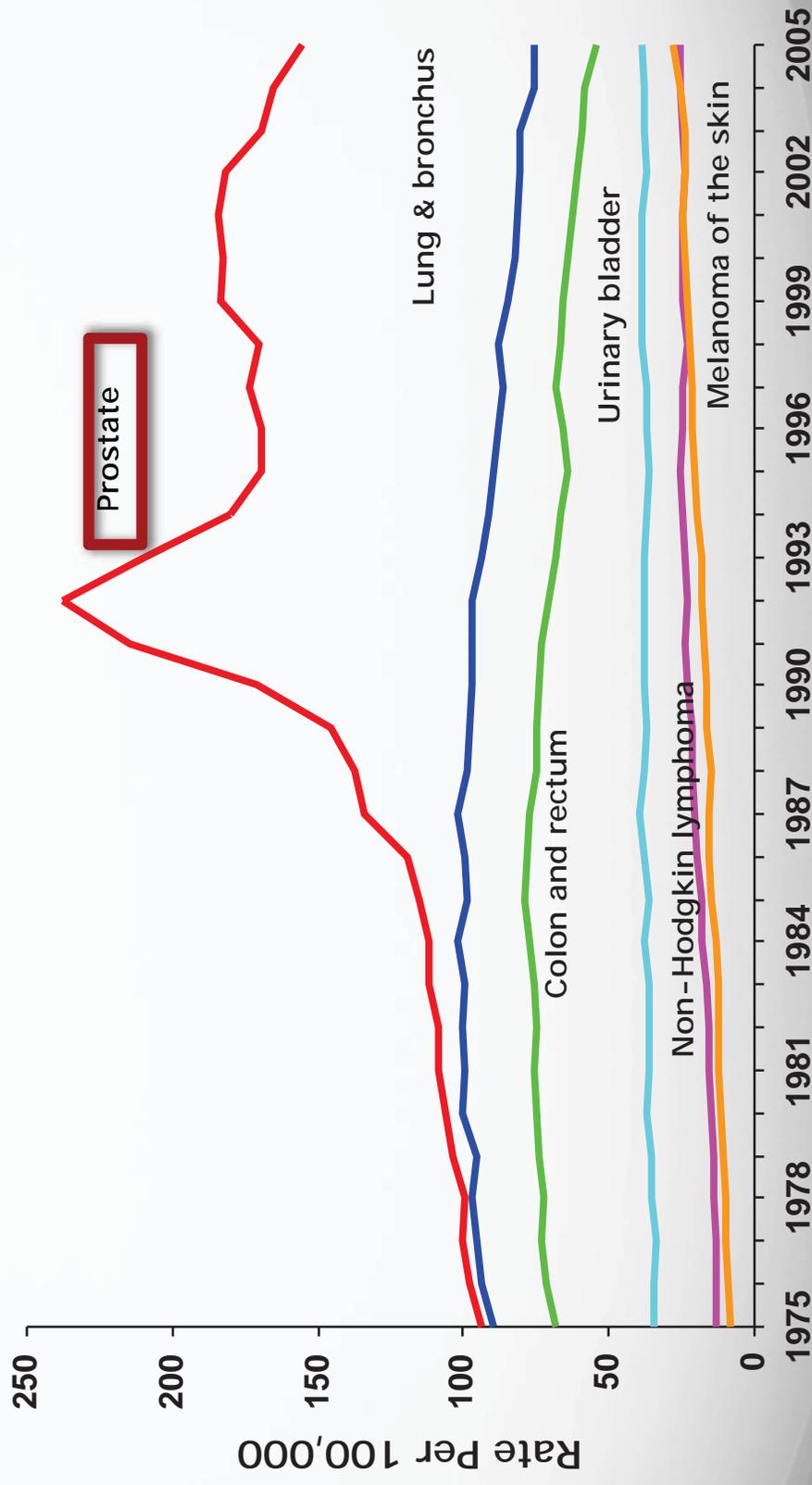
 Anthocyanin (Cyanidin)

 Current study

 Future Directions

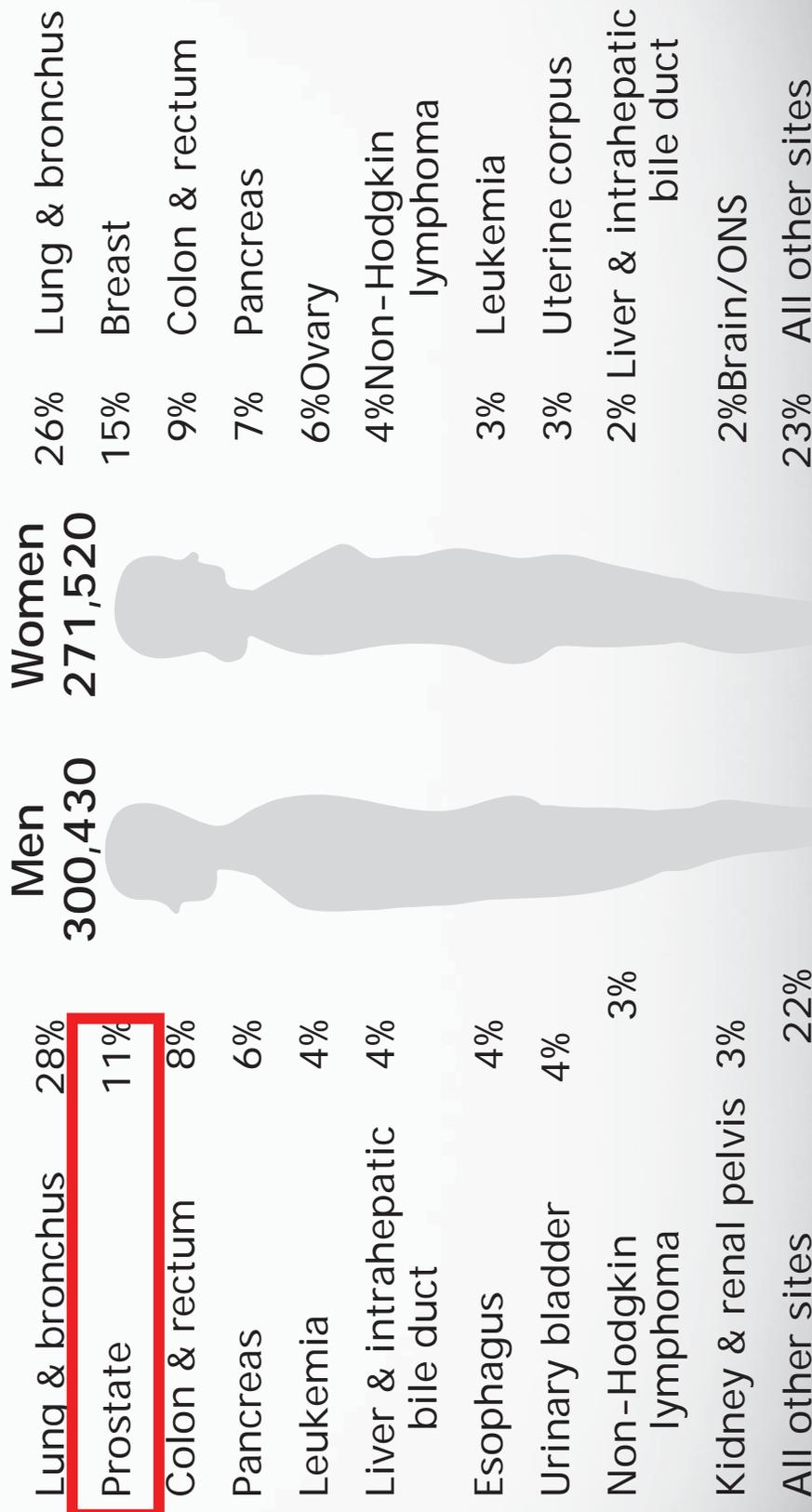


# Among Men, US, 1975-2005

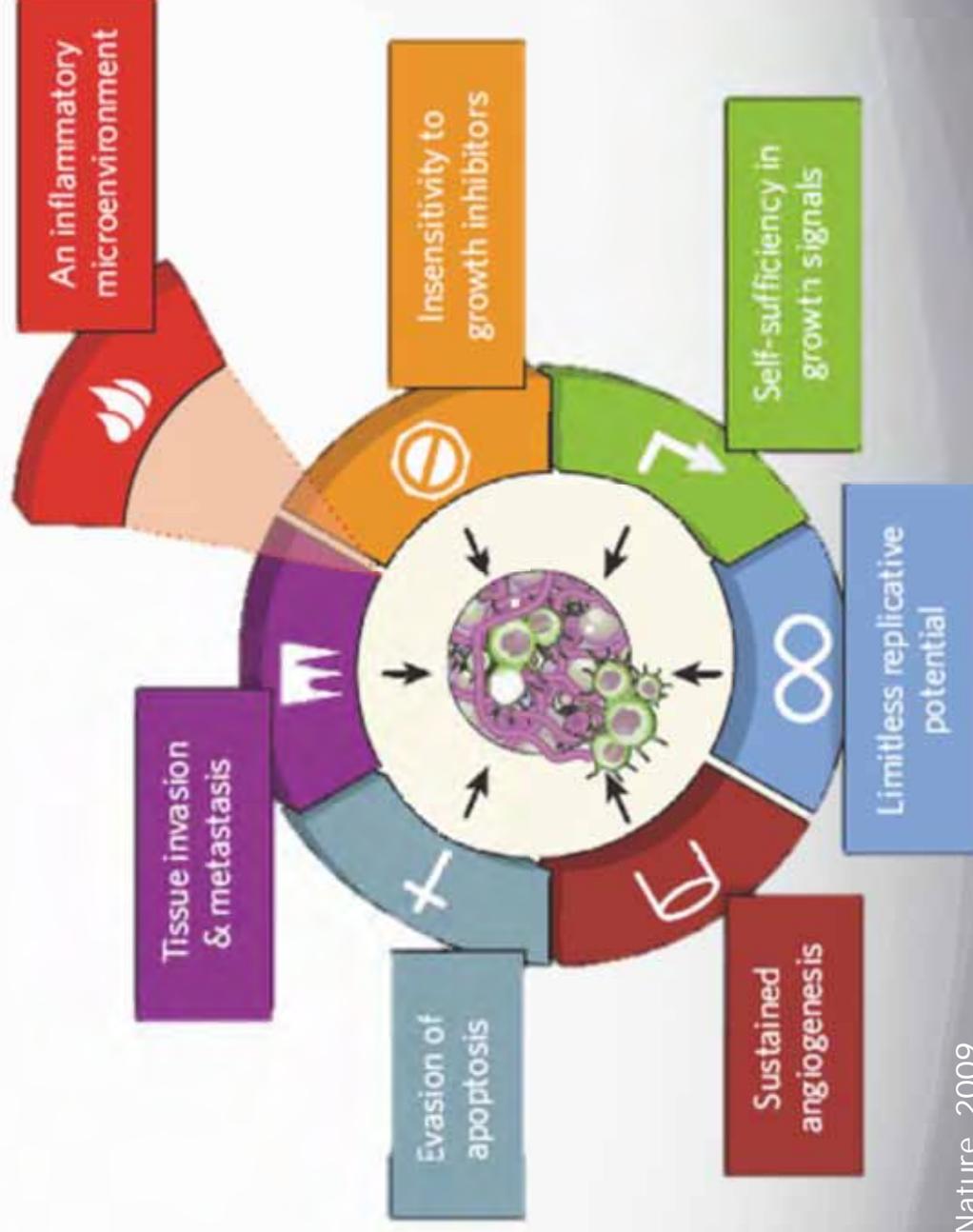


\*Age-adjusted to the 2000 US standard population and adjusted for delays in reporting.  
Source: Surveillance, Epidemiology, and End Results Program, Delay-adjusted Incidence database: SEER Incidence Delay-adjusted Rates, 9 Registries, 1975-2005, National Cancer Institute, 2008.

# 2011 Estimate: US Cancer Death Rates

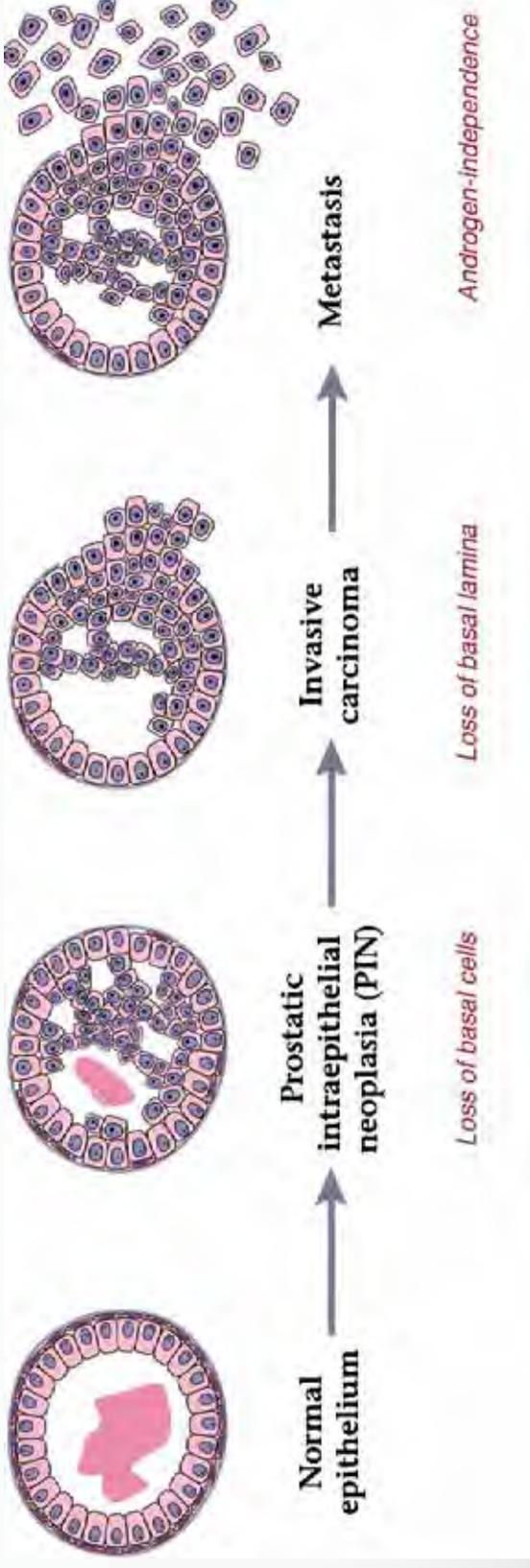


# The Hallmarks of Cancer



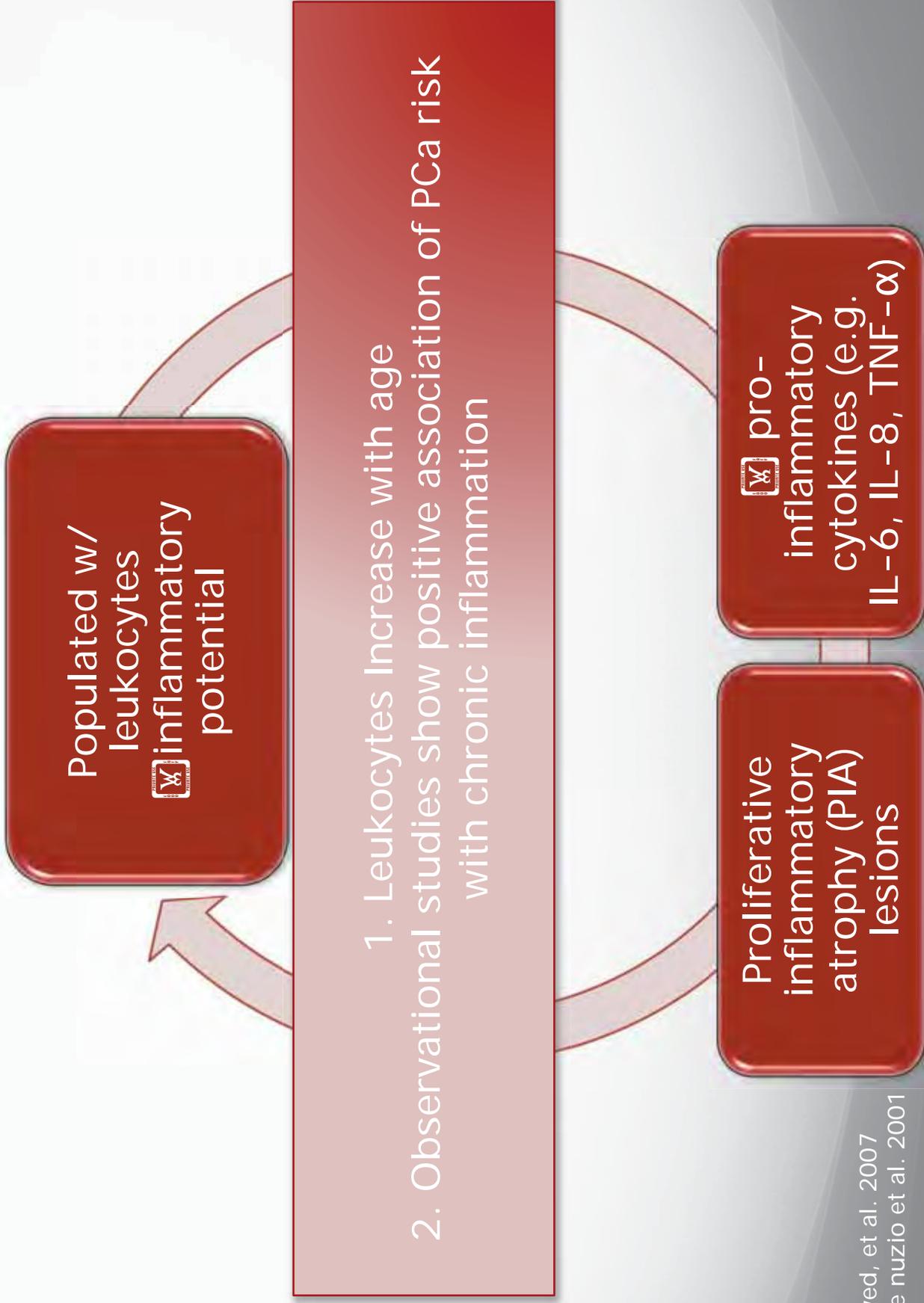
# Prostate Cancer (PCa)

 Genetic and epigenetic alterations  normal glandular epithelium  preneoplastic lesions  invasive carcinoma

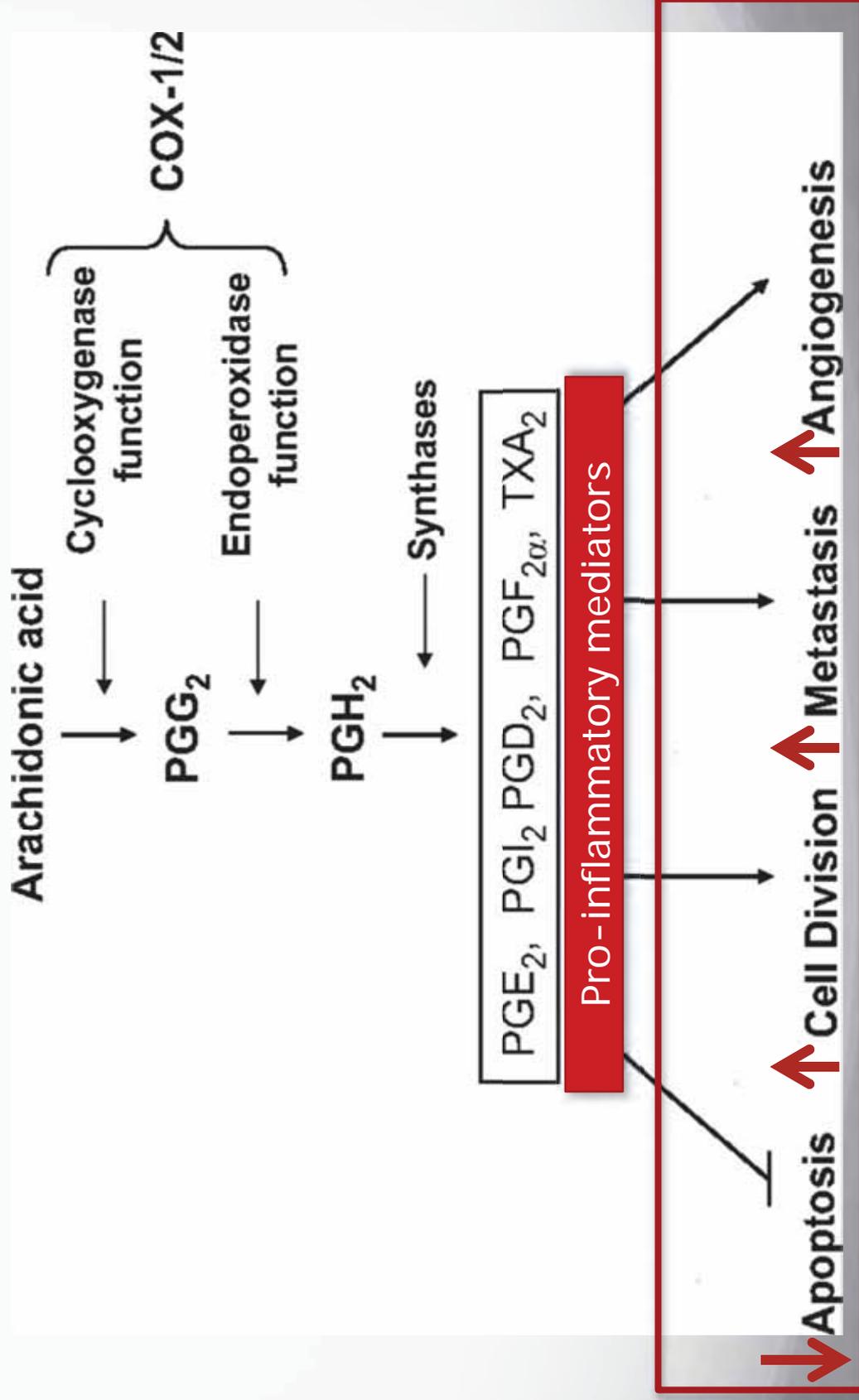


 Incidence increases with age

# Inflammation and Risk of PCa



# COX-2 Influence in PCa



# PCa Risk Factors

 Ethnicity/socioeconomic status (SES)

 Highest: African American

 Heredity

 10%

 Age

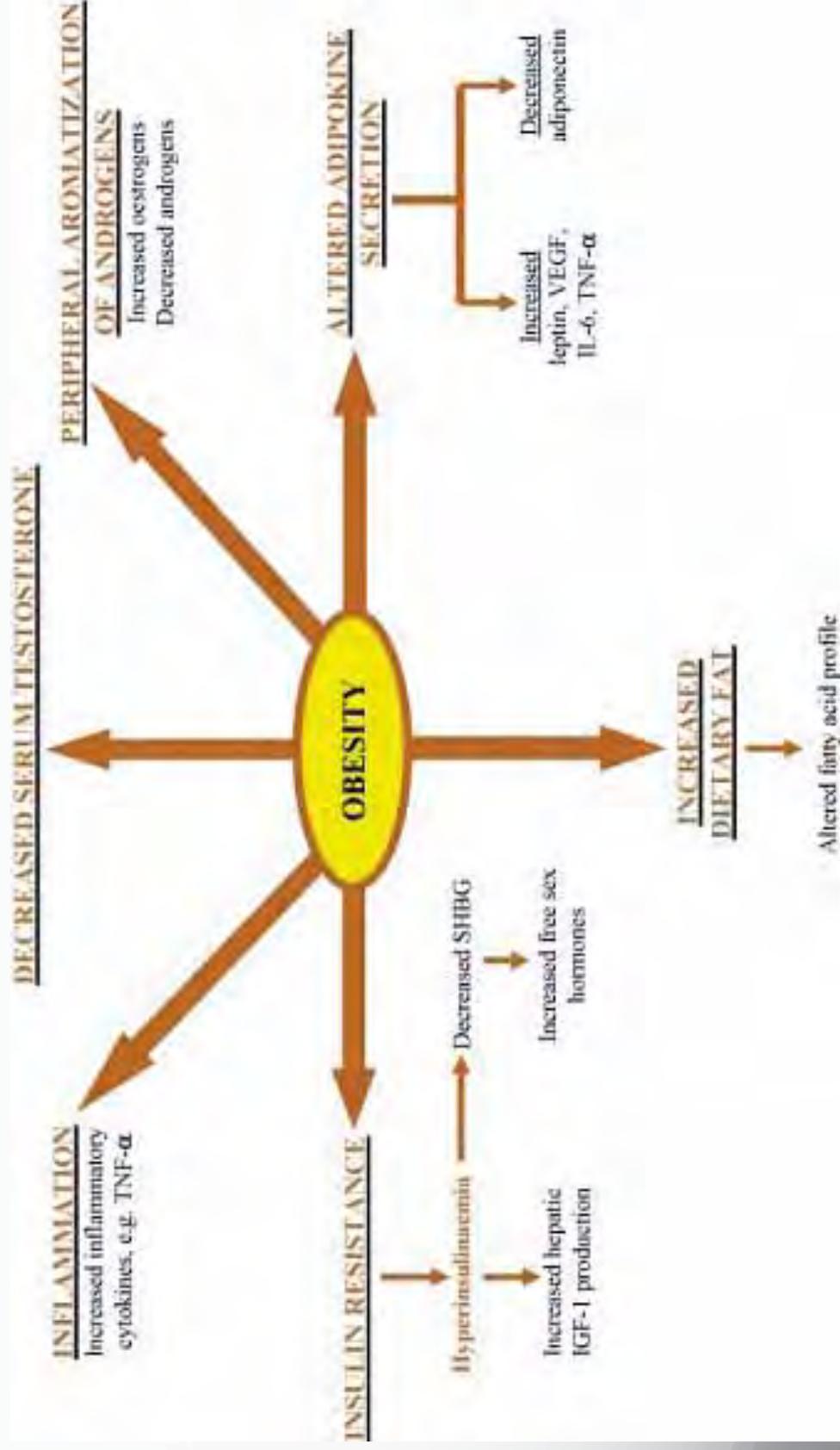
  Risk > 50 y.o.

 65 – 70% Dx > 65 y.o.

 Obesity

 Chronic inflammatory environment

# Obesity and PCa Initiation



# Obesity and PCa Risk

 Overall Relative risk: incidence

 1.03 (CI: 0.99, 1.07)

 n = 45,054

 Relative risk for obese men > 45 y.o.: incidence

 1.58 (CI: 1.29, 1.94)

 n = 33,314

 Relative risk: advance disease

 1.25 (CI: 1.06-1.49)

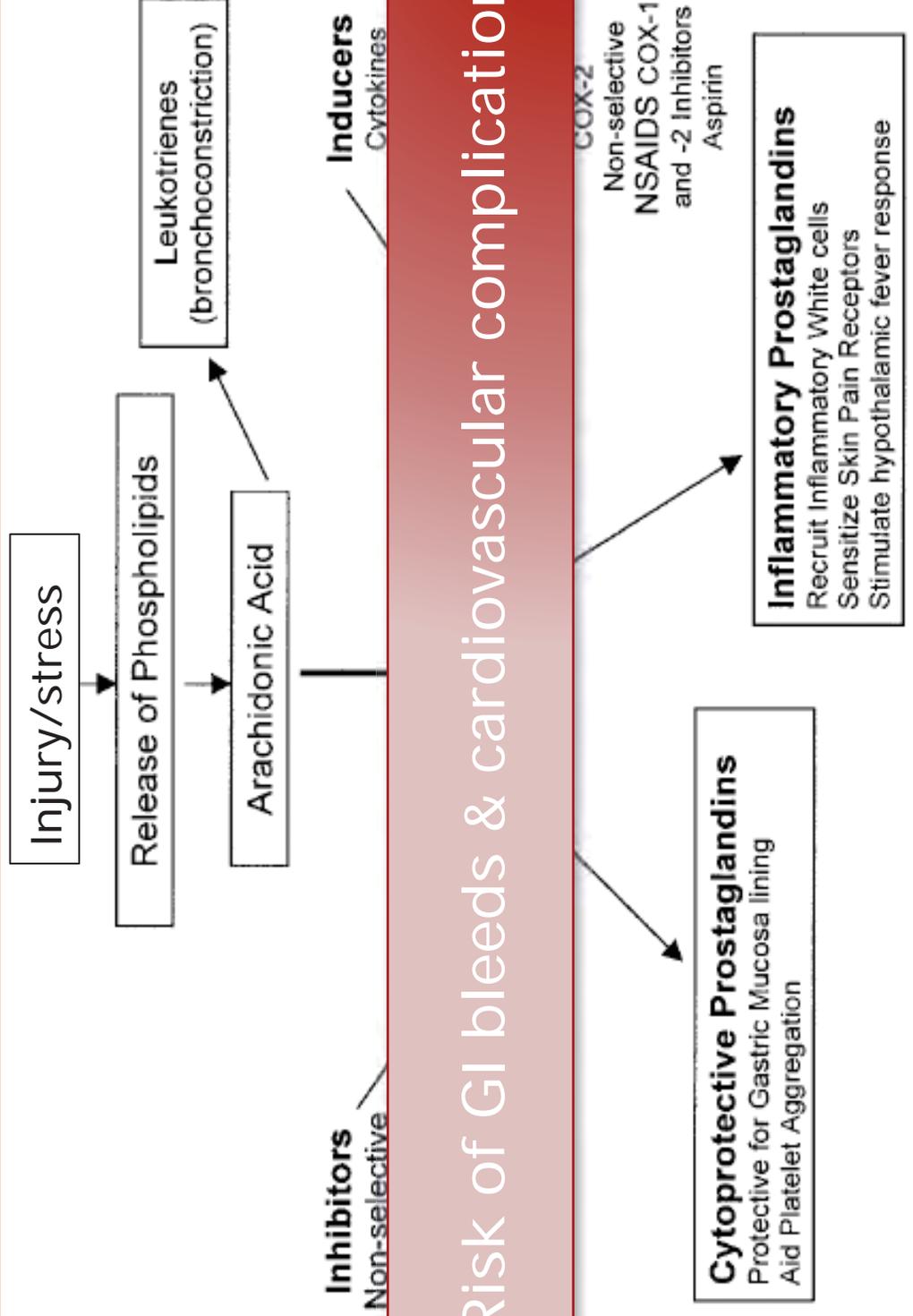
 n = 790

 Relative risk: mortality

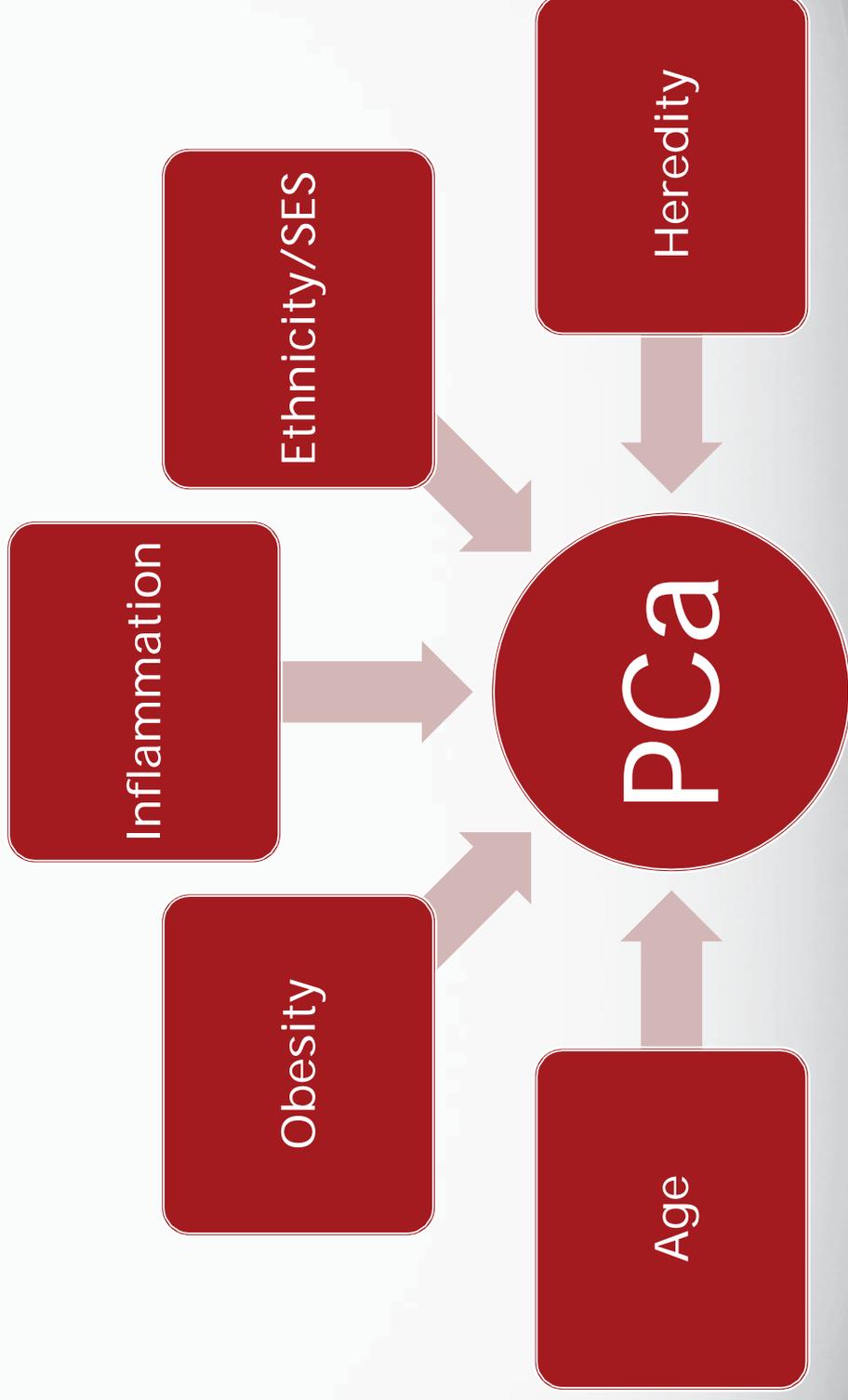
 1.25 (CI: 1,14-1.38)

 n = 9,255

# NSAIDs and PCa



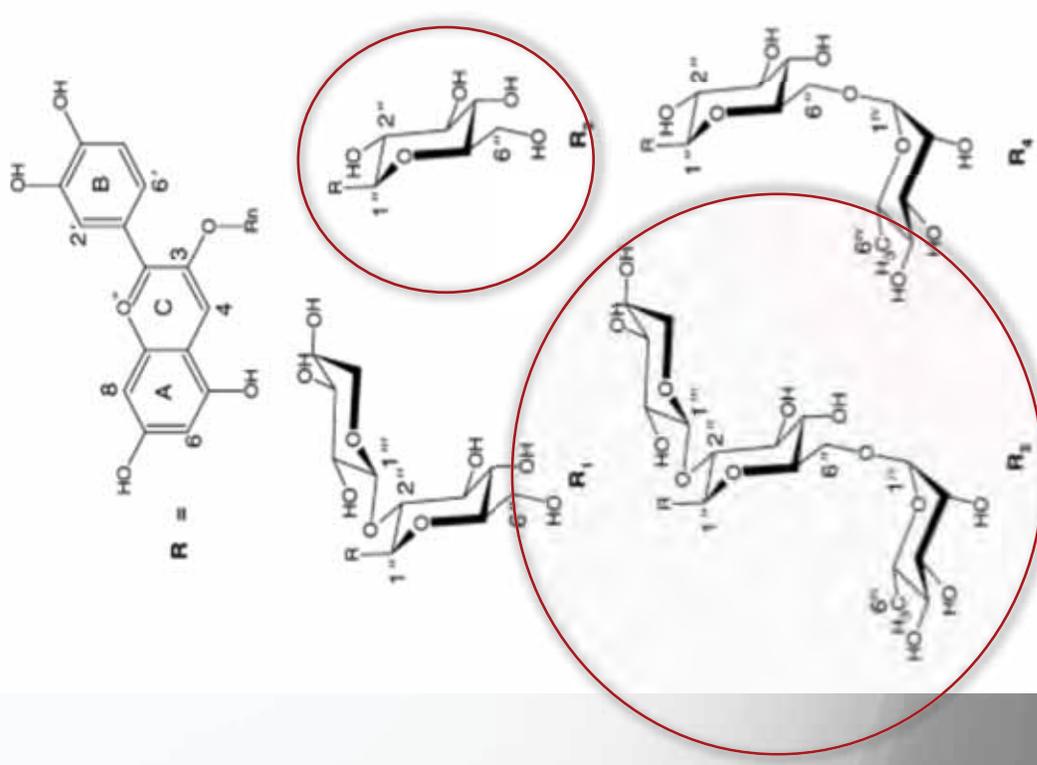
# Development of PCa



# PCa Summary

-  Highest incidence of male cancers
-  2<sup>nd</sup> highest mortality rate
-  Inflammation proposed mechanism
-  COX-2 mediated
-  Risk factors age and obesity
-  Inflammation mediated
-  NSAIDs increased toxicity
-  30% of men use complementary approach to treatment

# Cherries High in Anthocyanin (ACN)



- A Class of polyphenols
- A Responsible for brilliant red color
- A Cyanidin (Cy) major ACN
  - A 90%
- A USDA: 80mg/142g
- A Cy varies by glycosylation at C-3 hydroxyl group
  - A R1 = C3 sambuioside (C3SAM)
  - A R2 = C3 glucoside (C3GLU)
  - A R3 = C3 rutinoside (C3RUT)
  - A R4 = C3 xylosyl-rutinoside (C3XRUT)

# Factors that Affect ACN Content

## Pre-harvest

 Soil

 UV light exposure

 Temperature

 Ripening stage

## Post-harvest

 Storage

 Processing

 Freezing

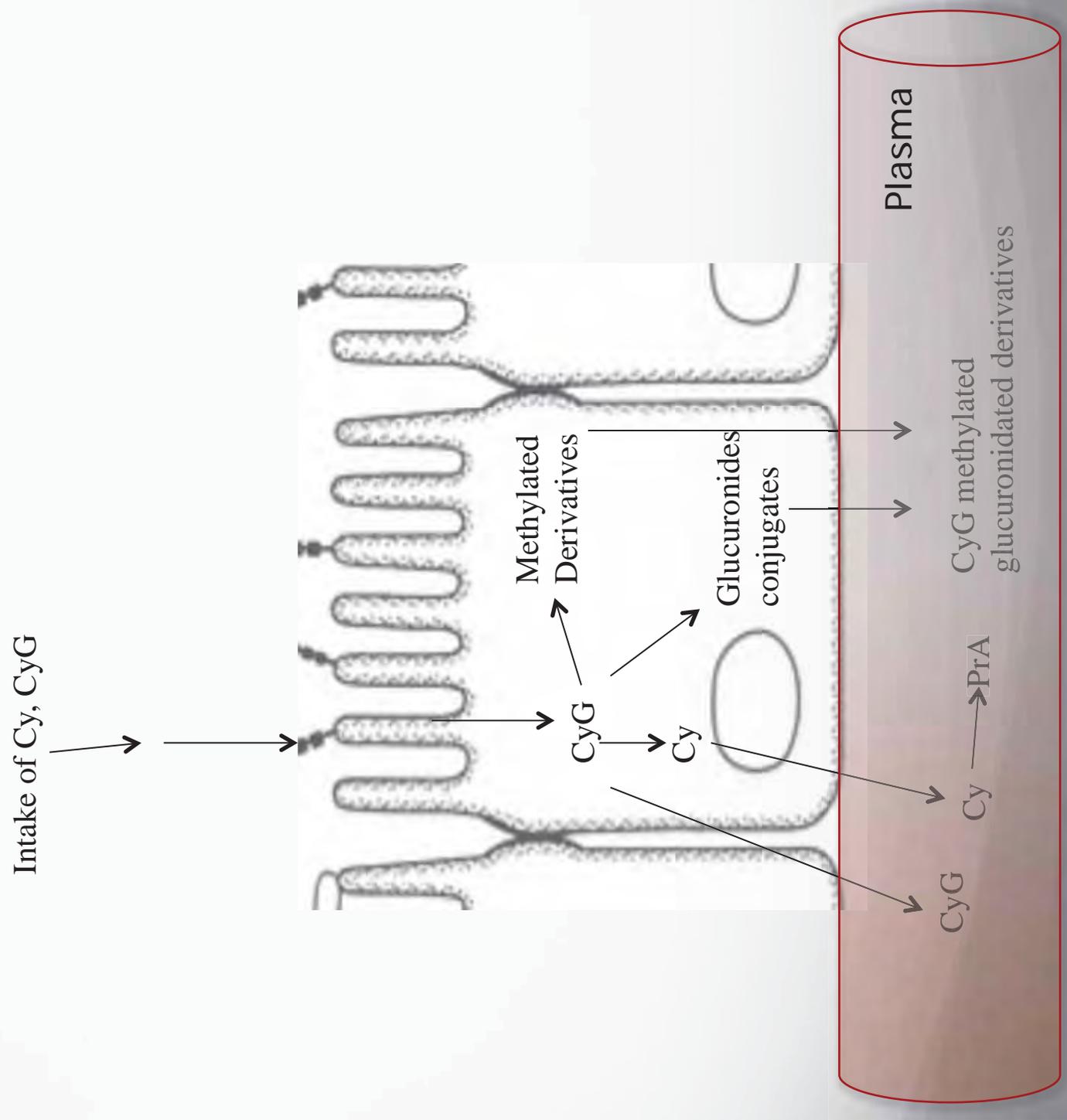
 Decrease ACN ( $-20^{\circ}\text{C}$ )

# Metabolism of ACN

- Previous research concluded ACN was poorly metabolized
  - 0.018-0.379% recovery in plasma
  - HPLC-UV
- Current research has improved the understanding of ACN metabolism
  - 12.5-15% recovery
  - New techniques: LC-MS/MS

# Proposed Metabolism

Williamson et al. 2010  
Galvano et al. 2007  
Thomasset et al. 2009



# Cherries and Inflammation

## Cell Culture

-  oxidative stress
-  DNA cleavage
-  ROS
-  inflammation

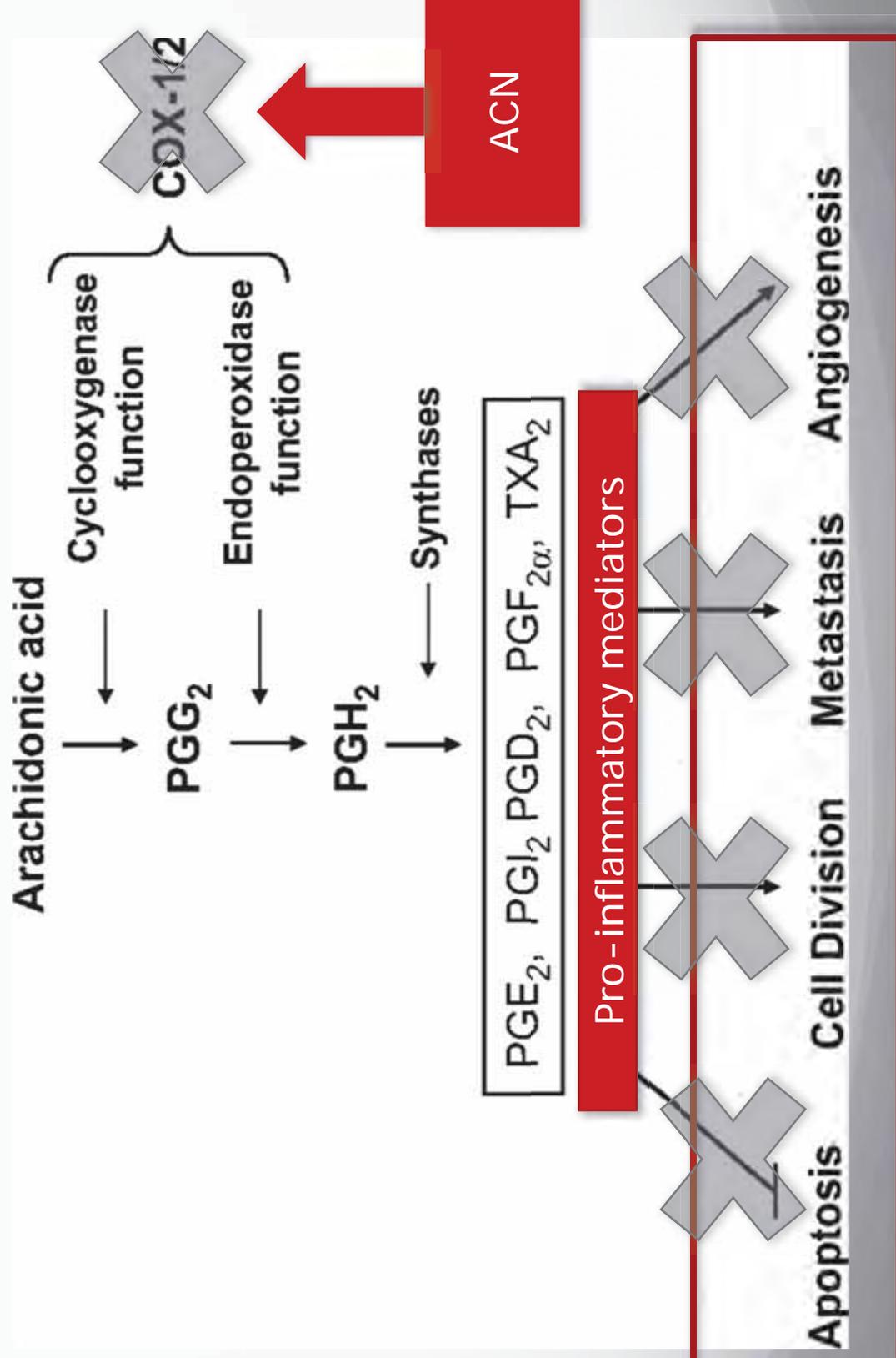
## Animal Studies

-  inflammation induced pain
-  serum inflammatory cytokines
-  antioxidant status

# Cherries and Inflammation (human trials)

Reference	Participants	Intervention	Outcomes	Results
Kelley et al. (2006)	18 health adults	Bing cherry 280 g/d x 28 days	The effects of sweet cherries on lipids and inflammation	↓CRP, NO and RANTES
Connolly et al. (2006)	14 male athletes	24oz tart cherry juice x 8 days	The effects of tart cherry juice –preventing symptoms of exercise induced muscle damage	↓self reported pain ↓elbow strength loss
Kuehl et al. (2010)	54 athletes	8 oz tart cherry juice vs placebo x 5 daily pre and 48 hrs post race	The effects of tart cherry juice on perceived pain and beverage satisfaction	↓perceived pain ↓satisfaction
Howatson et al. (2010)	20 athletes	8 oz tart cherry juice vs placebo x 5 daily pre and 48 hrs post race	The effects of tart cherry juice on inflammation and post race muscle strength	↓muscle strength

# COX-2 Influence in PCa

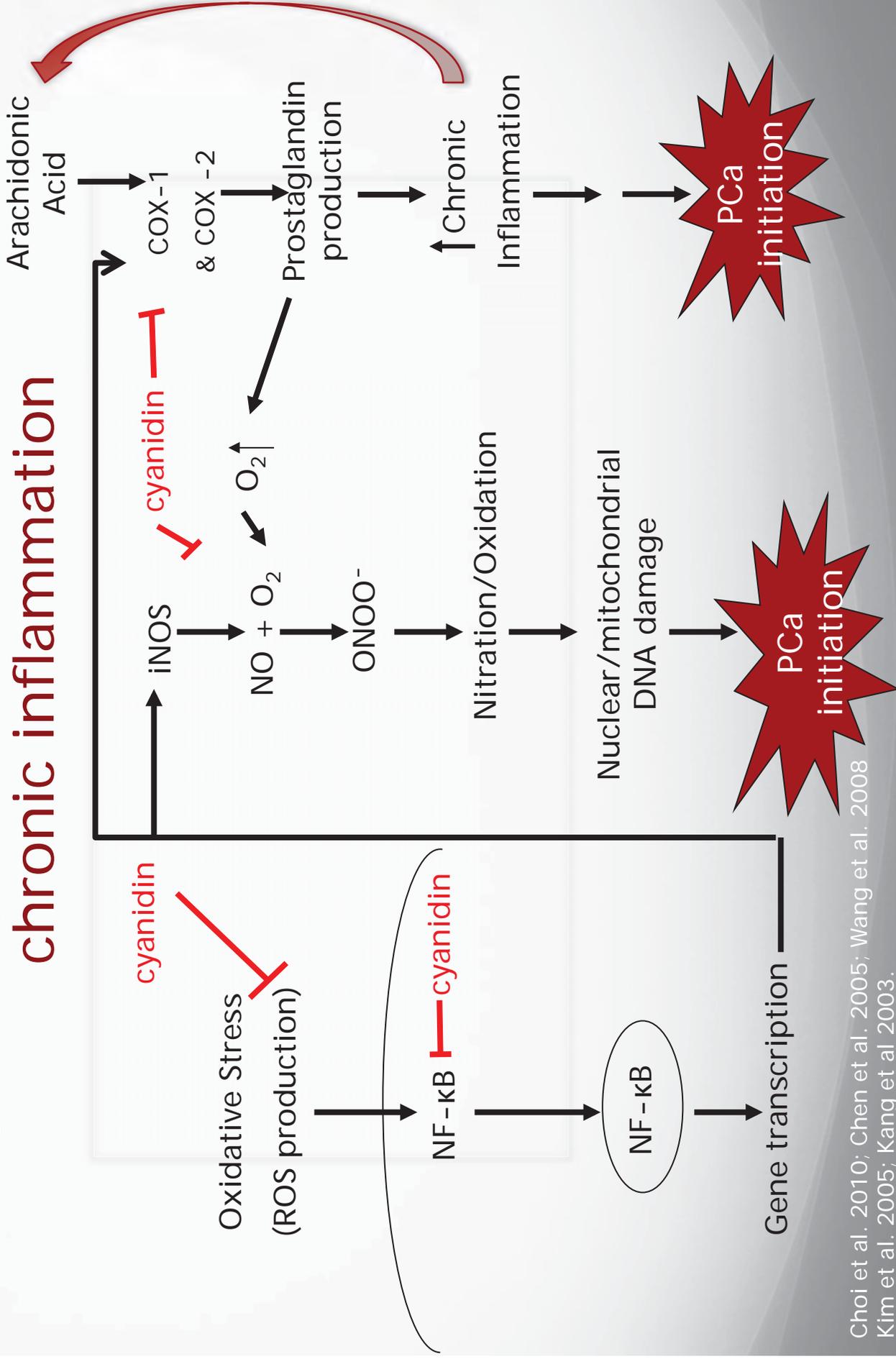


# Cy COX-2 Inhibition

Reference	Cell line	ACN	Dose	Outcome	Primary Results
Hou et al. (2005)	LPS activated macrophages (RAW 264)	5 ACN*	75 $\mu$ M x 30 min	Effect of 5 ANC on expression of COX-2	Cy and Delphinidin treated cells: êCOX-2 mRNA and protein levels
Seeram et al. (2007)	Human tumor cell lines (MCF-7 and SF-268)	5 ACN* (Cy from tart cherry)	40 $\mu$ M x 48 hrs	Inhibitory effect of ANC on COX-1 and COX-2 activity	Cy ê COX -1 activities by 52.2% ê COX-2 activities by 74.2%
Munoz-Espada et al. (2006)	Prostate CA (LNCaP)	Cy	0.5-1 $\mu$ M x 24 hrs	Effect on PGE2 and COX-2 levels	êPGE2 and COX-2 protein levels ê mRNA levels of COX-2
Reddy et al. (2005)	Human tumor cell lines (AGS, HCT-116, MCF-7, NCI-H460, SF-268)	C3G	12.5-200 $\mu$ m/ml	Effects on COX activity and tumor cell growth inhibition	êlipid peroxidation êCOX-1 and COX-2 expression êCa cell growth

# Cy Proposed Mechanism:

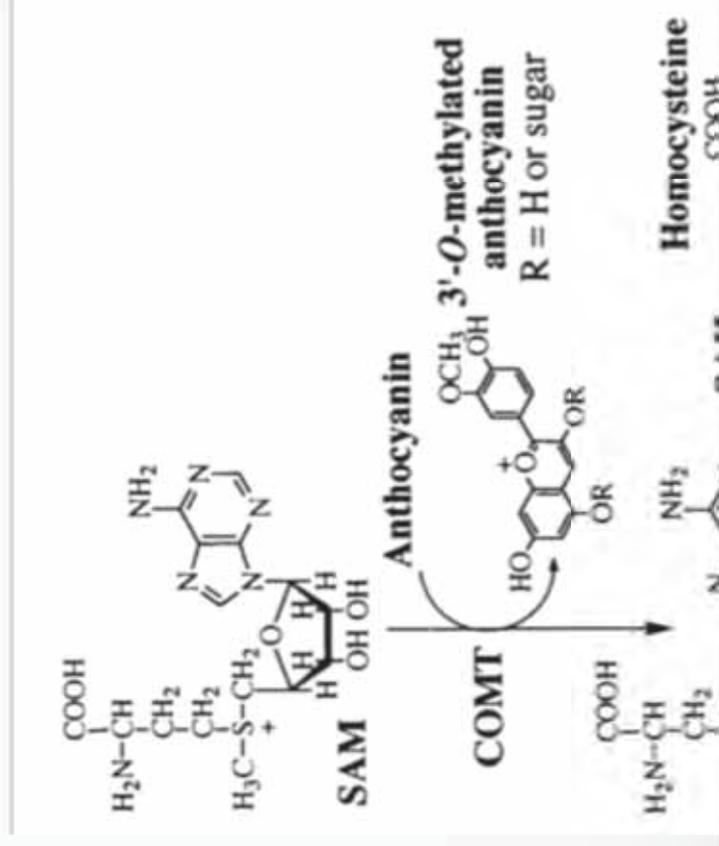
## chronic inflammation



Choi et al. 2010; Chen et al. 2005; Wang et al. 2008  
Kim et al. 2005; Kang et al 2003.

# Possible Toxicity: Homocysteine (Hcy)

1. Cy transported to liver
2. S-adenosylmethionine (SAM) serves as methyl donor
3. Methylated to form C3SAM
4. S-adenosylhomocysteine (SAH) possible byproduct
5. SAH hydrolyzed to Hcy



6 2002 study, rats administered 100mg ACN  1.8  
x Hcy (3.7 to 6.7  $\mu\text{mol/L}$ )

# Hcy and CVD

## Epidemiological

 Positive association between mild Hcy elevations and CVD

  3  $\mu\text{mol/L}$

 Homocysteine Studies Collaboration

  25% Hcy reduced

 Ischemic heart disease (11%)

 Stroke (19%)

## Prospective

 3 major trials found no association with decreased (>25%) Hcy and decreased CVD events

 Norwegian Vitamin (NORVIT) trial

 Heart Outcomes Prevention Evaluation (HOPE 2)

 Vitamin Intervention for Stroke Prevention (VISP)

Nakagawa et al. 2002

Toole et al. 2004

Bonaa et al. 2006

# The Role of Fresh Sweet Cherries in Modulating Biomarkers of Inflammation Among Males at Risk for Prostate Cancer

University of Arizona



THE UNIVERSITY  
OF ARIZONA®

# Specific Aims

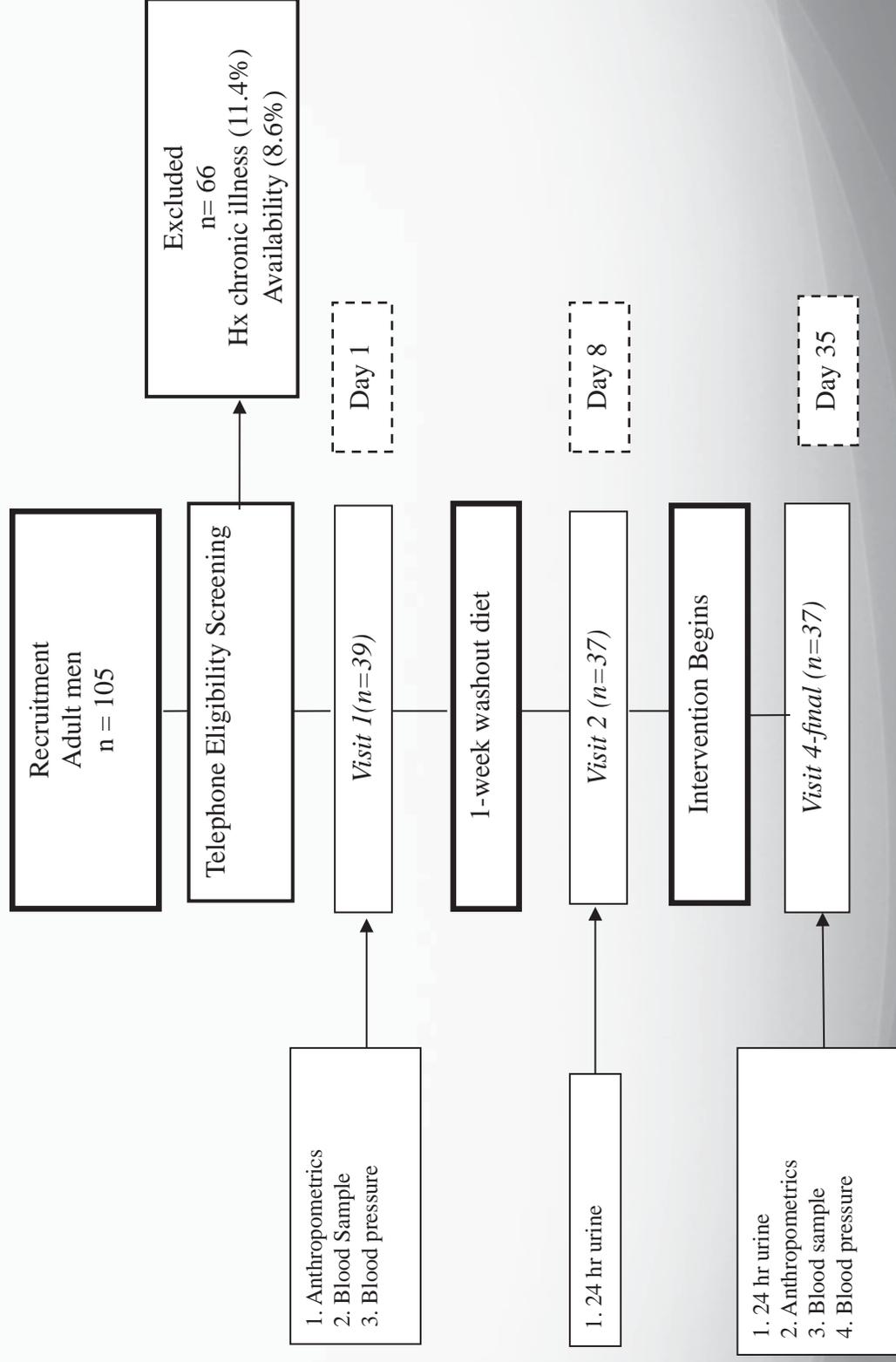
- 1.** Accurately quantify the exposure of ACN within the 4-week study intervention using cherry intake exposure and change in plasma and urinary ACN
- 2.** Assess plasma levels of ACNs to determine biodistribution in circulation
- 3.** Evaluate the effect of daily consumption of cherries on urinary and plasma biomarkers of COX-1 and COX-2 associated activities (TBX2, PGEM and CRP)

# Methods: Sample

- Inclusion Criteria
  - > 50 y.o.
  - BMI: 25-45kg/m<sup>2</sup>
  - Abstinence from tobacco
  - No Dietary Supplement Use
  - Excluding MVI
  - Absent of co-morbidities
  - Cancer free (> 12mo)
- Recruitment
  - Summer 2011
  - Print
  - TV
  - Electronic Ads

Goal: 30 men at high-risk PCa (age, overweight)

# Methods: CONSORT



# Methods: Diet Intervention

 Pacific Northwest sweet cherry growers

 California

 Oregon

 Washington

 Maintain 'normal' intake and physical activity levels

 Successful completion of 1 week washout diet

 1 cup (142g) cherries 3 x day for 4 weeks

 Waste weight calculated

# Cherry Storage and Consumption Procedures

Our success depends on you!! We appreciate your time and value your effort in this important study! Please read the instructions below in regards to your study provided cherries:



**Storage:** The cherries must be stored in the refrigerator!!

## Proper Study Consumption:

1. Rinse each serving of cherries just before you eat them.
2. Consume 1 cup of cherries in the morning, afternoon and evening.
3. Eat the entire cherry, except for the pit and stem.

## Improper Study

**Consumption:** It is important that you *do not* wash the cherries and put them back in the refrigerator. Rinse each cup right before you eat them.

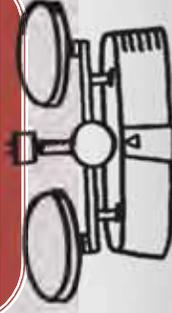


# Methods: Cherry Processing

Northwest Shipment

Whole Foods®  
• weekly delivery

U of A: Nutritional Science Building  
• storage (2°C)



Clinical Research Building  
• weekly participant pick-ups

Participant Residence

# Methods: Diet Composition

 Arizona Food Frequency Questionnaire (AZFFQ)

 Baseline and End of Study

 Behavioral Measurement Shared Services (BMSS)

# Methods: Compliance

 Weekly weights

 cherry pick-up weight (gm)– cherry return waste (gm)

 Cherry intake logs

 Diet modification

# Methods: ACN

Collection at U of A clinical setting

Formic Acid addition

- urine/plasma

Storage (-80°C)

30 participant samples shipped to OSU

- n=30

LC-MS/MS

- Detection 1ng/mL

# Methods: Inflammation

## Biomarkers

- Urinary prostaglandin E2 metabolite (PGEM)
  - 24 hr urine collections post-washout/end of study
  - ELISA kit (Caymen Chemical)
    - Lower limit of detection: 2.0 pg/mL
- Urinary thromboxane B2 (TBXB2)
  - 24 hr urine collections post-washout/end of study
  - ELISA kit (R&D Systems)
    - Lower limit of detection: 0.21 ng/mL
- Serum hsCRP
  - Blood collections pre-washout/end of study
  - ELISA kit (US Biological)
    - Lower limit of detection 0.1mg/L

Considered valid if CV < 10%

# Methods: Safety Outcomes

 Serum Homocysteine

 Lab Corp, Tucson AZ

# Methods: Anthropometrics

 Weight

 Height

 BMI

 Waist and hip circumference (W:H)

 Blood pressure

 Body Fat

 Handheld electro-impedence

# Methods: Secondary Outcomes

 Quality of Life

 SF-36

 physical functioning

 role-physical

 bodily pain

 vitality

 general health

 social function

 role-emotions

 mental health

 Bowel Habits

 Validated daily questionnaire

 # Bowel movements

 6 'yes' or 'no' questions

# Methods: Statistical Analysis

 Stata 12.0

 Circulating ACN

 Binary variables: McNemar's test

 Change in biomarkers, anthros, and bowel habits:

 Paired t-tests

 SF - 36

 Wilcoxon signed-rank test

 Change in biomarkers from baseline

 Linear regression

 Results: mean  $\pm$  standard deviation

 Significance < 0.05

# Results: Table 1

Participants (n = 39)	
Age (Years)	61.1±7.6
Ethnicity, n (%)	
non-Hispanic white	35 (89.7)
Hispanic	4 (10.3)
Education, n (%)	
High School Degree	14 (35.9)
Undergraduate Degree	14 (35.9)
Graduate Degree	10 (25.6)
Other	1 (2.56)
Weight (kg)	102.5±13.4
BMI (kg/m <sup>2</sup> )	31.5±4.3
Body Fat (%)	31.5±5.0
Waist Circumference (cm)	111.0±12.4
Hip Circumference (cm)	109.1±10.8
W:H Ratio	1.02±0.06
Systolic (mmHg)	133.6±11.0
Diastolic (mmHg)	83.4±9.2
Heart Rate (bpm)	69.4±9.9



Older



Minimal overall diversity



Highly educated



Higher SES

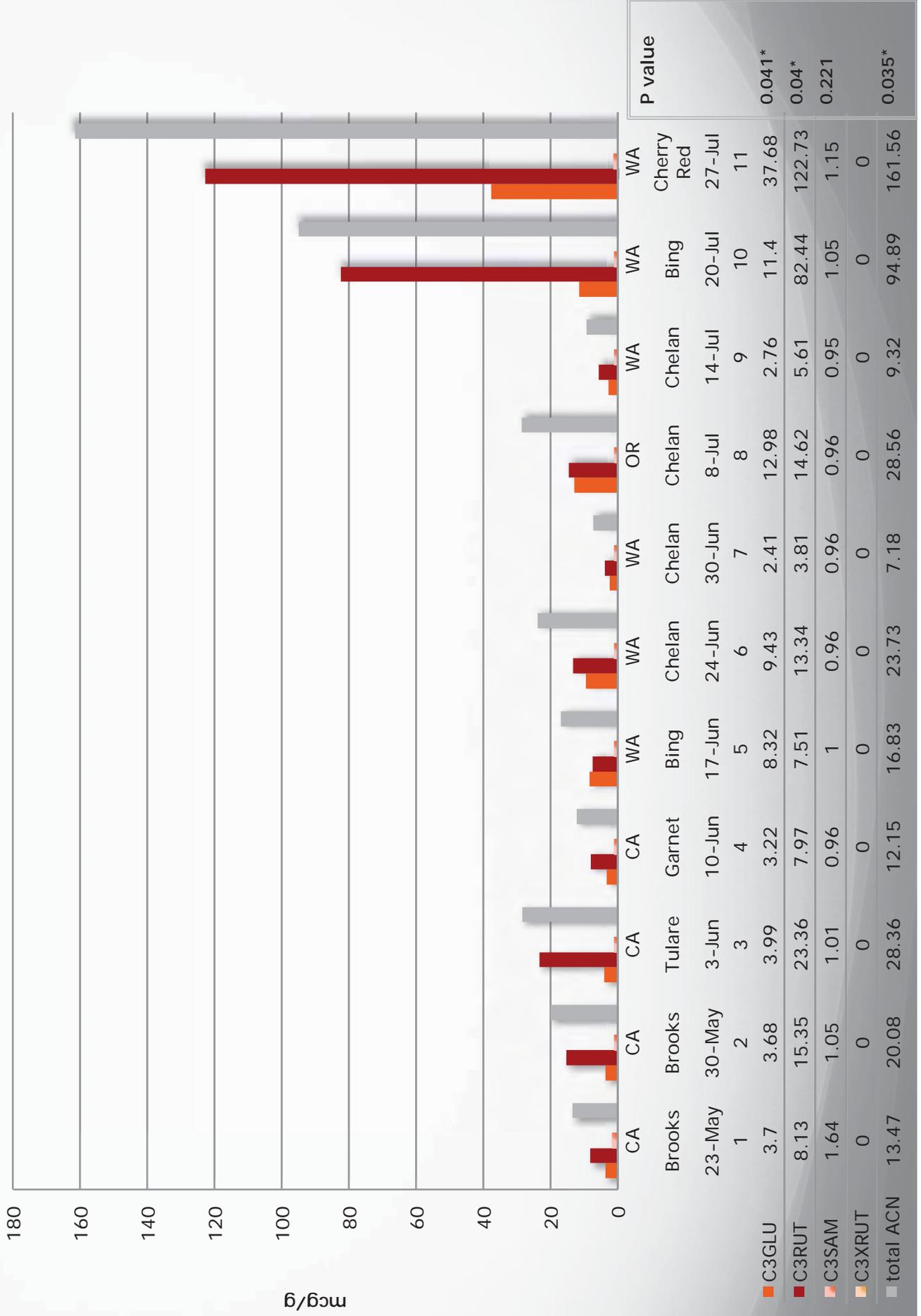


Obesity

# Results: ACN Exposure

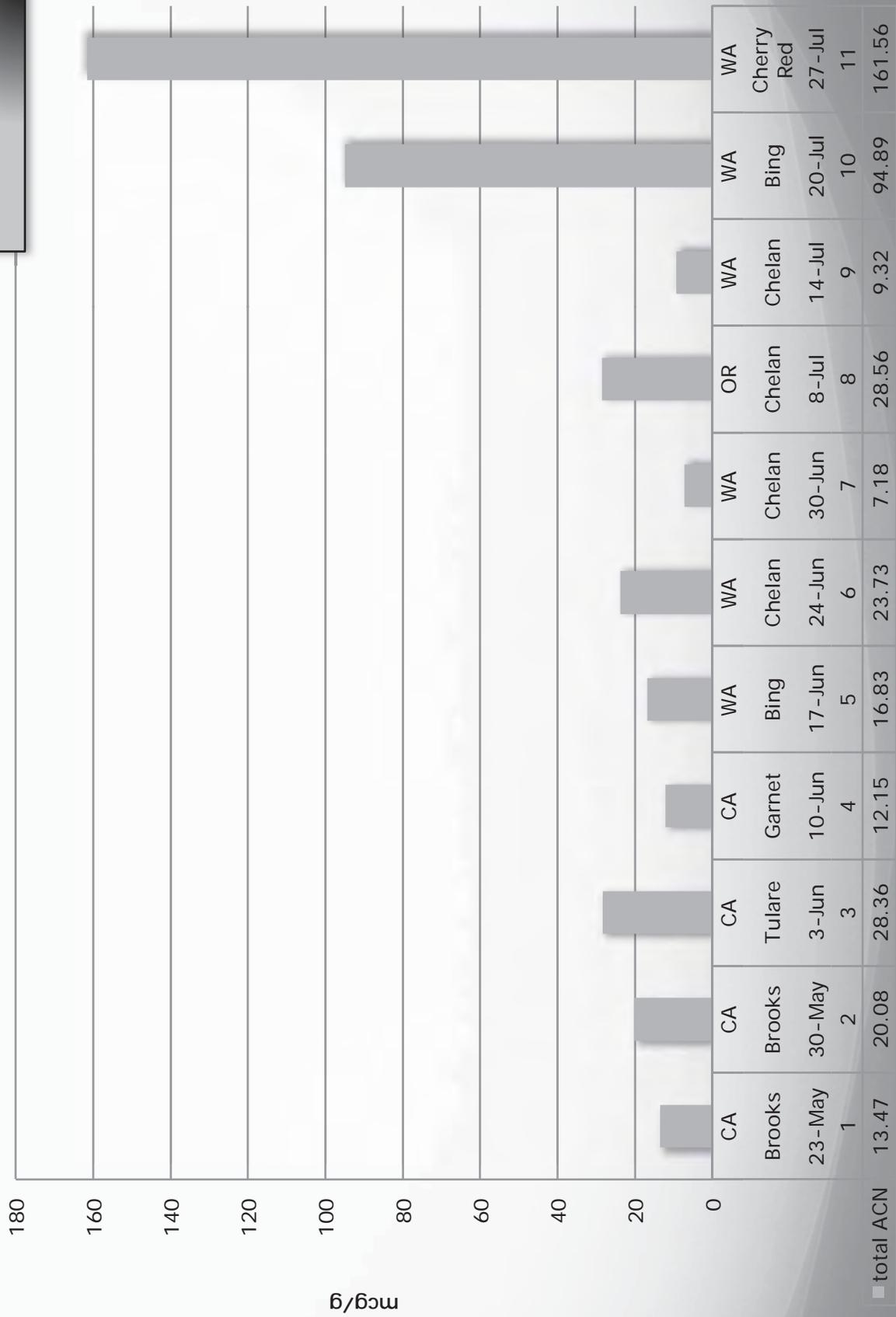
-  Cherry batch variability
-  Individual intake ACN exposure
-  Similar batch trend
-  Individual Circulating ACNs
-  Increase in C3RUT

# Cherry Batch Anthocyanin Content (n=11)



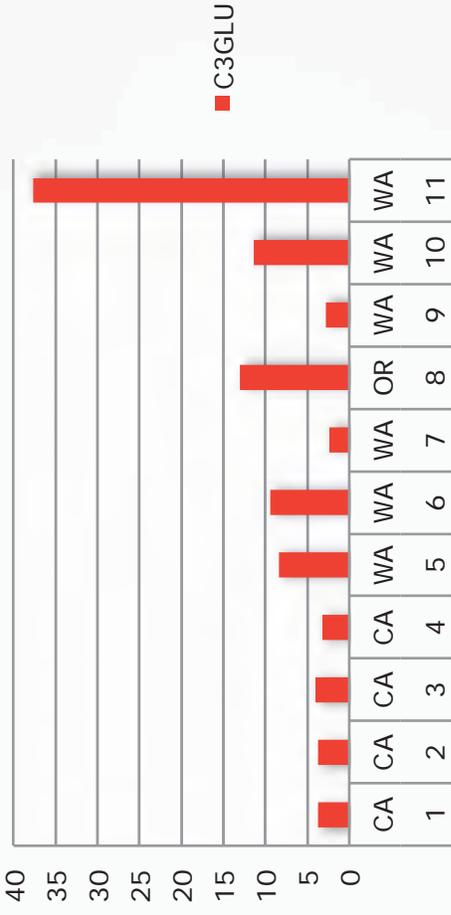
# Total ACN

P = 0.035



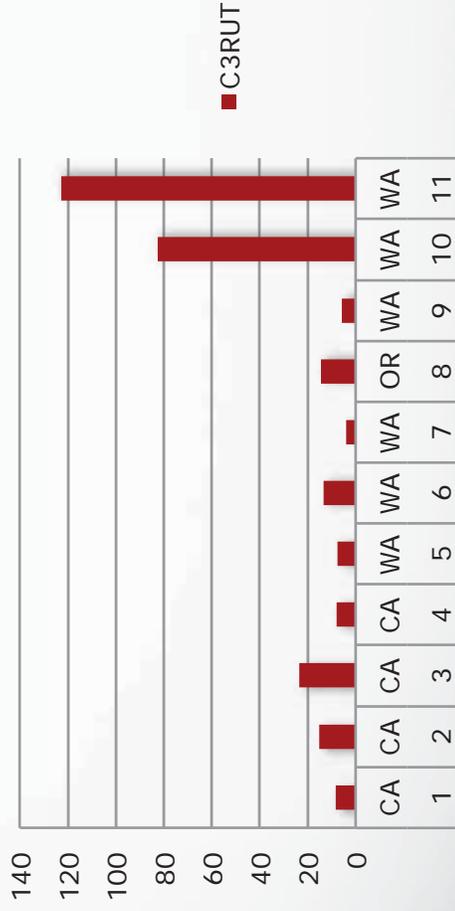
■ total ACN

# C3GLU



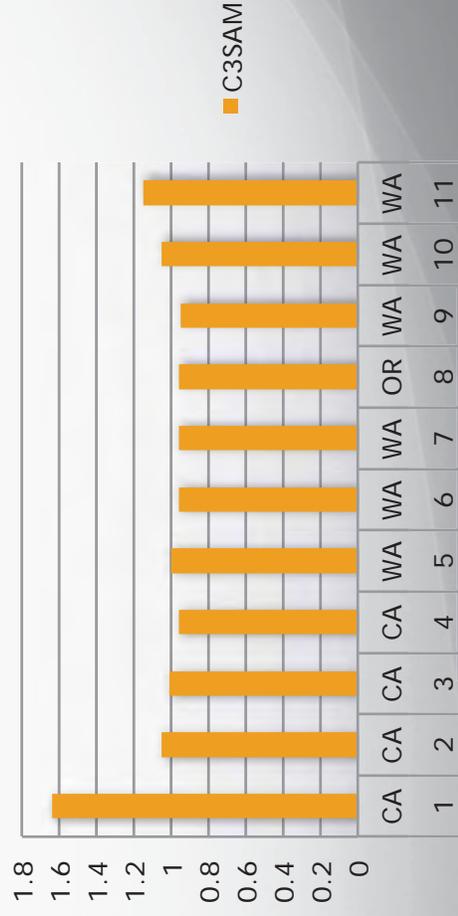
P = 0.041

# C3RUT



P = 0.04

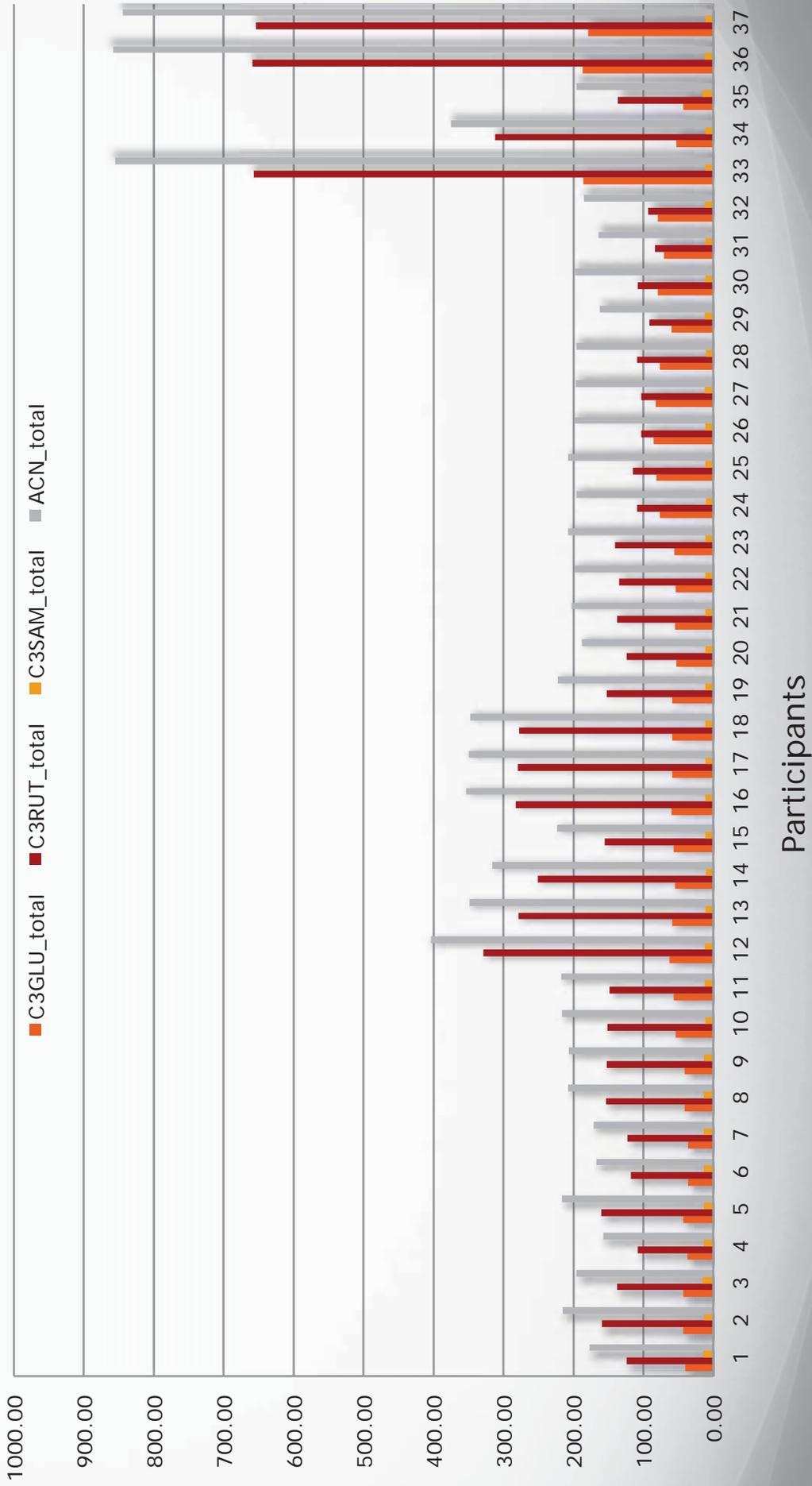
# C3SAM



P = 0.221

Mean exposure:  
279.5 ± 184.7 μg

## Participant 4-week ACN Exposure (n=37)



Total ACN p < 0.001

C3GLU p < 0.001

C3RUT p = 0.029

C3SAM p = 0.007

# Circulating ACN

## Plasma n=30

ACN	Baseline n(%)		Final n(%)		P value
	Undetecte d	Detected d	Undetecte d	Detected d	
C3GLU	14 (46.6)	16 (53.3)	24 (80)	6 (20)	0.006*
C3RUT	27 (90)	3 (10)	5 (16.7)	25 (83.3)	<0.001*
C3SAM	26 (86.7)	4 (13.3)	27 (90)	3 (10)	1
C3XRUT	30 (100)	0 (0)	30 (100)	3 (0)	1

## Urine n=30

ACN	Baseline n(%)		Final n(%)		P value
	Undetecte d	Detected d	Undetecte d	Detected d	
C3GLU	13 (43.3)	17 (56.7)	10 (33.3)	20 (66.7)	0.25
C3RUT	28 (93.3)	2 (6.7)	0 (100)	30 (100)	<0.001*
C3SAM	23 (76.7)	7 (23.3)	26 (86.7)	4 (13.3)	0.375
C3XRUT	30 (100)	0 (0)	30 (100)	0 (0)	1

# ACN Exposure Summary

-  Ripening stage had greatest influence on cherry ACN
-  Participants were exposed to significantly more ACN when consented mid-cherry season
-  Significant increase in plasma and urine C3RUT concentrated ACN

# Anti-inflammatory Biomarkers

 Urinary PGEM

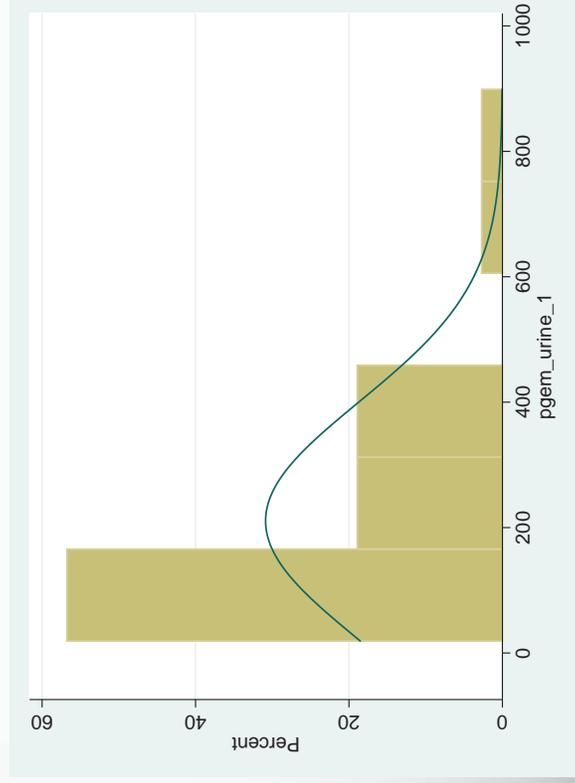
 Urinary TBX2

 Serum hsCRP

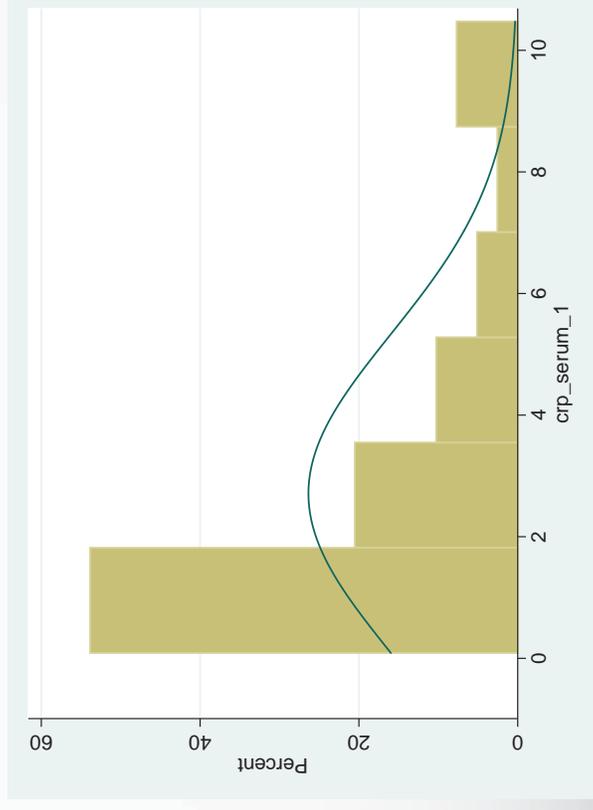
# Anti-inflammatory Biomarkers

Baseline skewed distribution (log transformation)

 PGEM



 hsCRP



# Baseline to End of Study

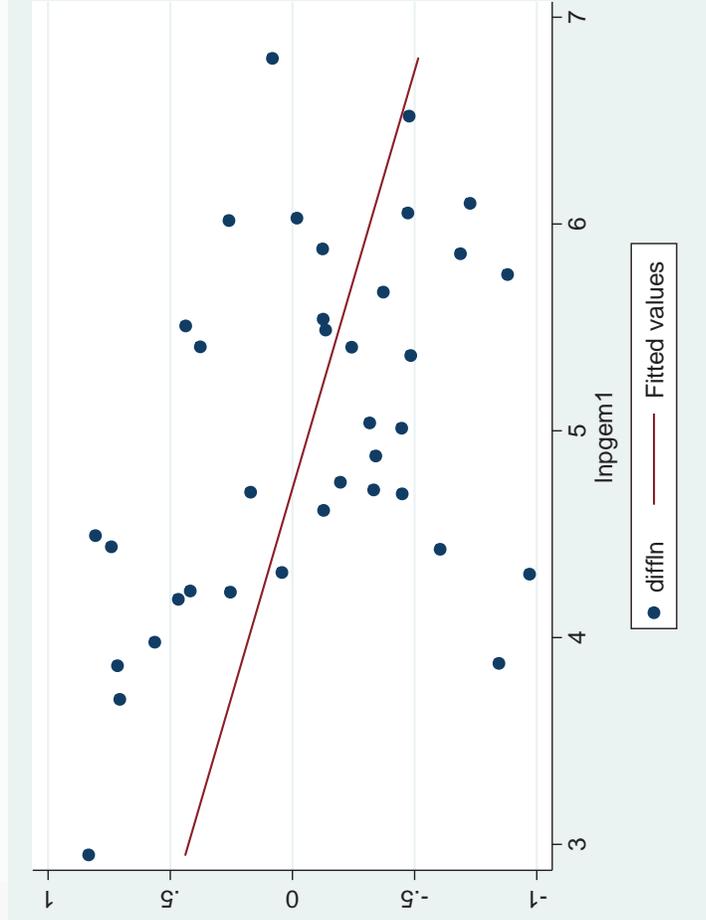
No Significant changes from baseline to end of study

Participants (n=37)				
	Before	After	Change	p value
PGEM2 (pg/mL)	210.61±189.51	189.71±179.43	-20.9±92.57	0.4273
TBxB2* (ng/mL)	18.32±6.2	19.07±7.29	0.75±0.09	0.5552
hsCRP (mg/L)	2.74±2.7	3.01±2.8	0.27±2.1	0.446
Homocysteine (umol/L)	10.27±2.7	10.73±3.6	0.46±2.7	0.464

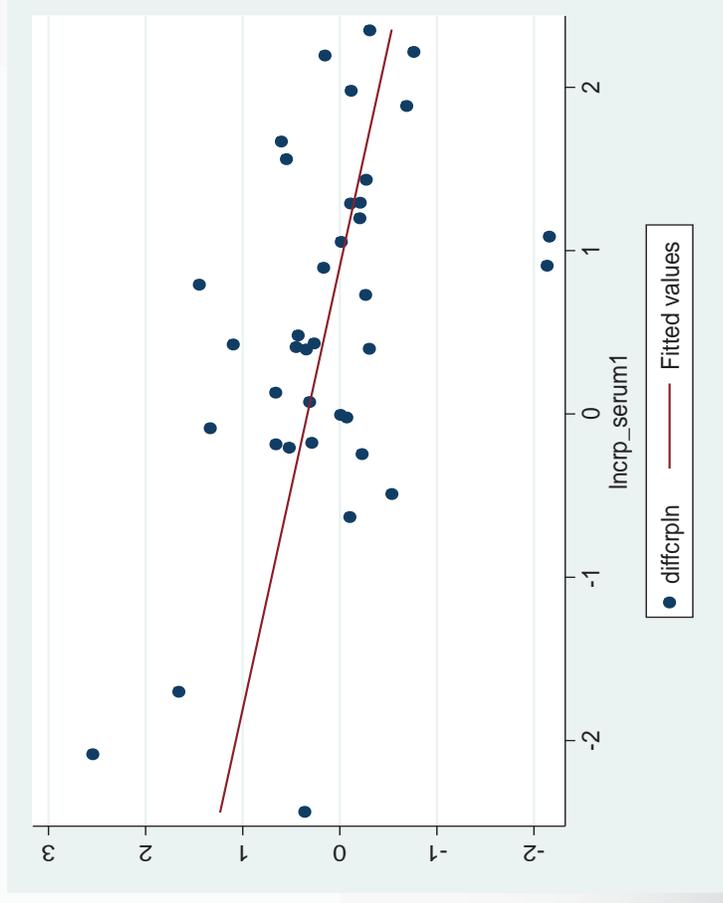
\*Due to CV >10% and no noted trend, TBXB2 was not further pursued.

# Linear Regression

PGEM



hsCRP



# Comparison of Inflammatory biomarkers

Participants (n=37)				
	Before	After	Change	p value*
PGEM2 < median (pg/mL)	78.8±29.6	90.6±44.4	11.9±45.5	0.473
PGEM > median (pg/mL)	349.7±187.6	294.3±208.7	-55.5±116.2	0.014*
hsCRP < median (mg/L)	0.9±0.5	1.5±1.1	0.6±0.9	0.011*
hsCRP > median (mg/L)	4.7±2.7	4.5±3.2	-0.1±2.9	0.302
HC* < median (umol/L)	8.59±1.32	8.95±2.2	0.36±1.75	0.377
HC > median	12.05±1.28	12.61±3.93	0.57±3.44	0.48

PGEM median (131.4pg/mL), hsCRP median (1.54 mg/L), HC median (10.2 umol/L)

## Intake Exposure: PGEM

	baseline	final	change	p value*
<b>Total ACN</b>	$\mu\text{g}$			
low	187.6 $\pm$ 16.0	254.3 $\pm$ 22 4.1	-33.6 $\pm$ 10 4.9	0.176
high	376.5 $\pm$ 229.3	128.9 $\pm$ 10 3.5	-7.5 $\pm$ 78.3	0.891
<b>C3GLU</b>				
low				0.1
high				0.592
<b>C3RUT</b>				
low	115.6 $\pm$ 17.1	282.8 $\pm$ 21 8.7	-43.0 $\pm$ 11 0.2	0.1
high	289.5 $\pm$ 180.8	134.4 $\pm$ 11 5.9	2.4 $\pm$ 64.6	0.592
<b>C3SAM</b>				
		236.3 $\pm$ 13	210.0 $\pm$ 21	-26.3 $\pm$ 10

No significant changes in PGEM compared to intake ANC exposures

## Intake Exposure: hsCRP

		baseline	final	change	p value*
<b>Total ACN</b>	μg				
low	187.6±16.0	2.4±2.1	3.18±3.0	0.8±2.3	0.198
high	376.5±229.3	3.1±3.1	2.8±2.6	-0.3±1.8	0.894
<b>C3GLU</b>					
low					0.274
high					0.759
<b>C3RUT</b>					
low	115.6±17.1	2.5±2.2	3.2±3.0	0.7±2.4	0.274
high	289.5±180.8	2.9±3.2	2.8±2.6	-0.2±1.8	0.759
<b>C3SAM</b>					
low	11.2±0.3	3.8±3.2	4.0±3.2	0.3±2.8	0.439
high	12.9±1.1	1.6±1.2	1.9±1.9	0.27±1.1	0.559

No significant changes in hsCRP compared to intake ANC exposures

# Circulating Exposure: C3RUT

Plasma			
Biomarkers	Undetected C3RUT	P value	Detected C3RUT p value
PGEM	n/a	n/a	-18.4 ± 101.7 0.483
hsCRP	n/a	n/a	0.4 ± 2.1 0.276
Homocysteine	n/a	n/a	0.6 ± 2.9 0.292

No significant changes in PGEM or hsCRP compared to circulating ANC exposures

# Inflammatory Summary

-  No changes in baseline PGEM or hsCPR
-  Changes in PGEM or hsCRP were not associated with intake exposure or circulating ACN exposure
-  Significant increase in hsCRP in men with initial lower levels of hsCRP
-  Significant decrease in PGEM (COX-2 metabolite) in men with elevated baseline values

1. Initial inflammatory levels influences outcomes
2. Cherry intake significantly impacted inflammatory status

# Results: Anthropometric

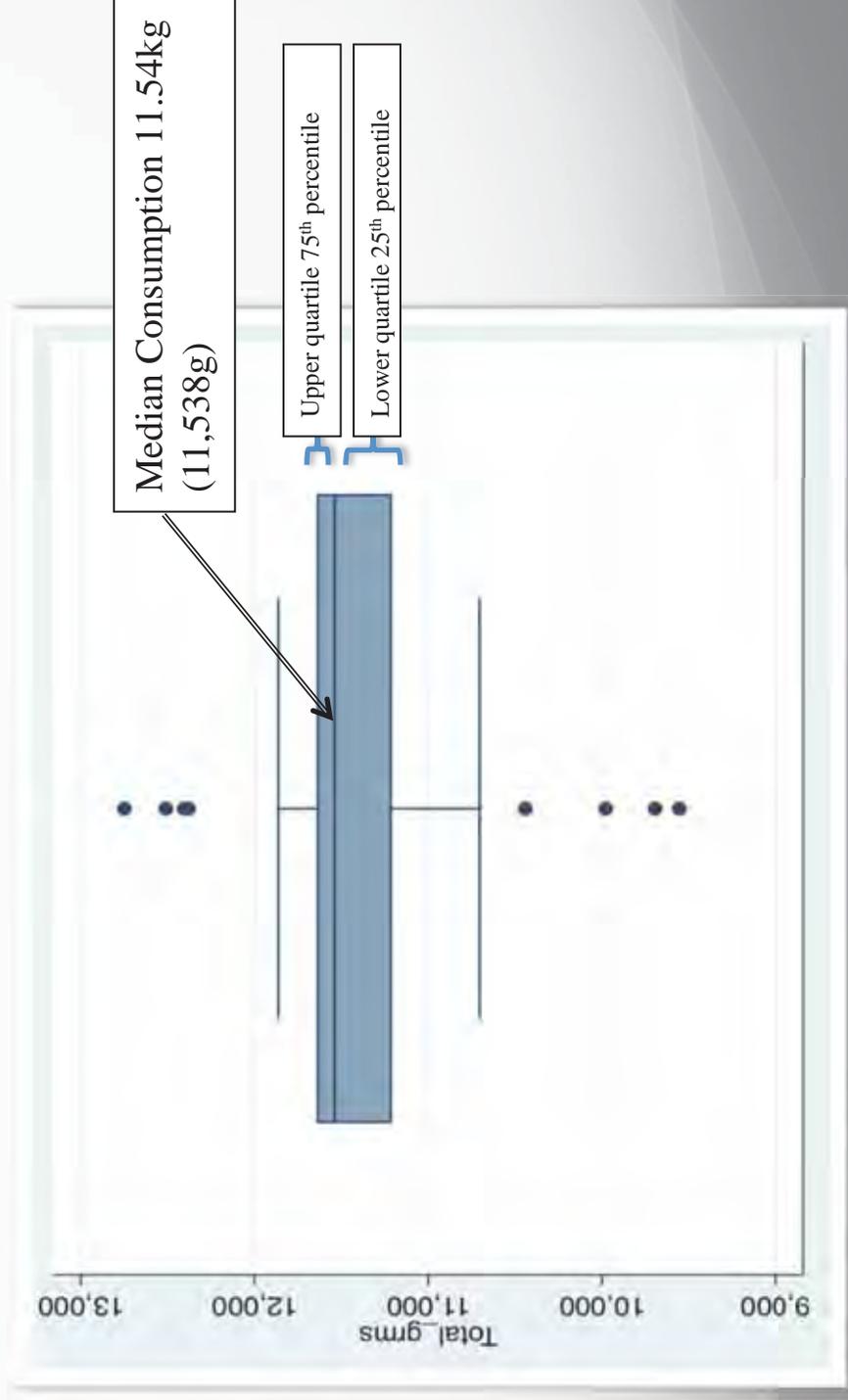
Participants (n=37)				
	Before (n=29)	After (n=37)	Change	p value <sup>a</sup>
Weight (kg)	102.5±13.4	102.9±13.3	0.42±2.23	0.102
BMI (kg/m <sup>2</sup> )	31.5±4.3	31.6±4.3	-0.23±0.13	0.343
Body Fat (%)	31.5±5.0	31.4±5.0	-0.08±1.17	0.654
Waist				
Circumference (cm)				
Hip				
No anthropometric changes were observed during the intervention				
Circumference (cm)	109.1±10.8	109.±11.16	0.44±1.49	0.07
W:H Ratio	1.02±0.06	1.05±0.06	-0.001±0.023	0.837
Systolic (mmHg)	133.6±11.0	131.4±12.8	-2.21±11.78	0.25
Diastolic (mmHg)	83.4±9.2	81.0±16.6	-2.29±14.32	0.313
Heart Rate (bpm)	69.4±9.9	71.1±12.3	1.69±9.1	0.253

# Diet Composition

<b>Participants (n=37)</b>			
	<b>Baseline</b>	<b>Post-Intervention</b>	<b>p value*</b>
<b>Energy (kcal)</b>	2247±1339	1902±671	0.104
<b>Fat (g)</b>	84±49	72±29	0.128
<b>Saturated Fat (g)</b>	27±3	23.6±10.6	0.166
<b>Carbohydrate (g)</b>	277±193	240±94	0.194
<b>Protein (g)</b>	93±50	77±32	0.04*
<b>Fiber (g)</b>	26±19	22±10	0.135
<b>Sodium (mg)</b>	3855±2449	3349±1285	0.203
<b>Potassium (mg)</b>	3637±2106	3167±1335	0.083
<b>Folate (µg)</b>	492±295	405±175	0.048*
<b>Vitamin C (mg)</b>	145±103	116±75	0.021*
<b>EPA (g)</b>	0.7±0.1	0.5±0.1	0.101
<b>DHA (g)</b>	0.09±0.02	0.12±0.03	0.088

# Compliance: 4 week total

**A** 50% of men consumed within 1 daily serving of each other (420g)



# Secondary Outcomes

Quality of Life (SF-36)

 No significant alterations

Bowel Habits

 No significant change

 Week 1: 1.7/day

 Week 2: 1.8/day

 Week 3: 1.8/day

 Week 4: 1.7/day

# Secondary Outcome Summary

-  No changes in anthropometric measures
-  Slight alteration in diet composition
-  High compliance, dose well tolerated
-  No changes in measured quality-of-life
-  No changes in bowel habits

# Safety Outcome: Homocysteine

Baseline  $10.27 \pm 2.7 \mu\text{mol/L}$

P = 0.761

End of Study  $10.73 \pm 2.7 \mu\text{mol/L}$

End of study: 4 (10.8%) outside clinical  
range ( $15 \mu\text{mol/L}$ )

# Elevated Homocysteine Group

 A: 14.7 to 25.8  $\mu\text{mol/L}$

 B: 13.7 to 17.5  $\mu\text{mol/L}$

 C: 10.9 to 14.7  $\mu\text{mol/L}$

 D: 10.1 to 16.9  $\mu\text{mol/L}$

	Elevated (>15 $\mu\text{mol/L}$ )	Normal
# men	4	35
age	55.1 $\pm$ 2.9	61.8 $\pm$ 7.7
Weight (kg)	97.8 $\pm$ 7.7	103 $\pm$ 13.8
baseline Hcy ( $\mu\text{mol/L}$ )	12.3 $\pm$ 2.2	10.4 $\pm$ 2.1
Folate change ( $\mu\text{g}$ )	-164.8 $\pm$ 186.1	-77.5 $\pm$ 266.7

# Homocysteine Summary

-  Not a significant increase
-  10.8% (4) men increased outside of the clinical normal
-  Had normal baseline values
-  Increased > 4  $\mu\text{mol}$
-  Epidemiological studies associated the rise seen here (25%) with increase CVD (stroke, MI)
-  Clinical prospective trials inconclusive

Given this high-risk population (age and weight status); further research is needed to determine if there is an association between Cy and Hcy

# Conclusions

- Significant cherry batch-to-batch variability
  - Harvest time greatest effect
- Study dose was achievable and well tolerated
  - 420g/day
- Individual ACN exposure significantly varied
  - Dependent on consent date

# Conclusions

 10.8% (4) had a non-statistically significant increase from a 'normal' Hcy level at baseline to levels above the clinical normal range (15µmol/L)

 1 cup cherries 3 x daily significantly reduced PGEM in men with elevated levels, an initiator of PCa

initial values

 Reduction in PGEM (COX-2 metabolite) in men with elevated levels

# Strengths

 High risk population

 Whole food approach

 Examined circulating biomarkers of inflammation

 LC-MS/MS

 Quantification of ACN intake exposure

# Limitations

- ☐ Sample
  - ☐ Size
  - ☐ Diversity
  - ☐ Variability of biomarkers of inflammation
  - ☐ Limited 'normal' reference range for inflammatory markers
- ☐ ACN detection methods
  - ☐ Did not capture all metabolites (i.e. gluconornidated or methylated)
  - ☐ Timing of cherry consumption not controlled
  - ☐ Serum not post-washout
- ☐ Pre/post-harvest conditions
  - ☐ ripening
- ☐ Single food approach

# Future Directions

-  Examine relationship between high doses of Cy and Hcy
-  Methods for capturing ACN post consumption
  -  All metabolites
  -  Determine if metabolized and utilized
-  Development of Cy compound
  -  Controlled exposure
-  Repeat in targeted population
  -  Elevated inflammatory markers
  -  Survivors

# A special 'thank you' to....



Funders



Oregon Sweet Cherry  
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Oregon Department of  
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Washington State Sweet  
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Dr. Patricia Thompson



Julie Buckmeier



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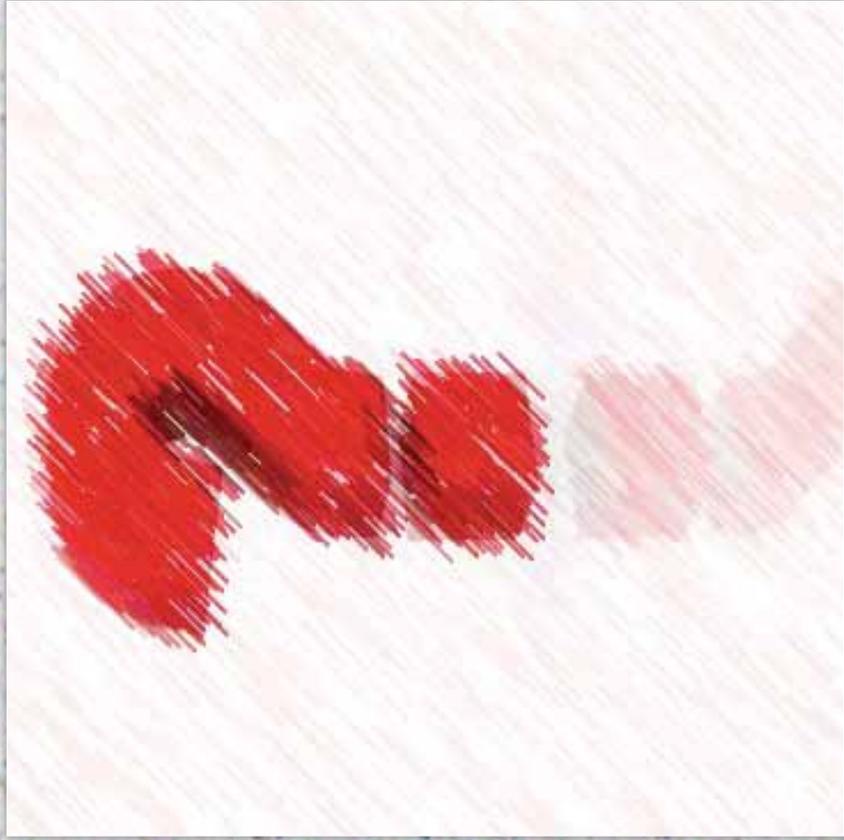


Stephanie Zavala



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Thank you!



# Cherries:

## Inflammation and Ca

### Anti-inflammatory effects of cherries in cell models

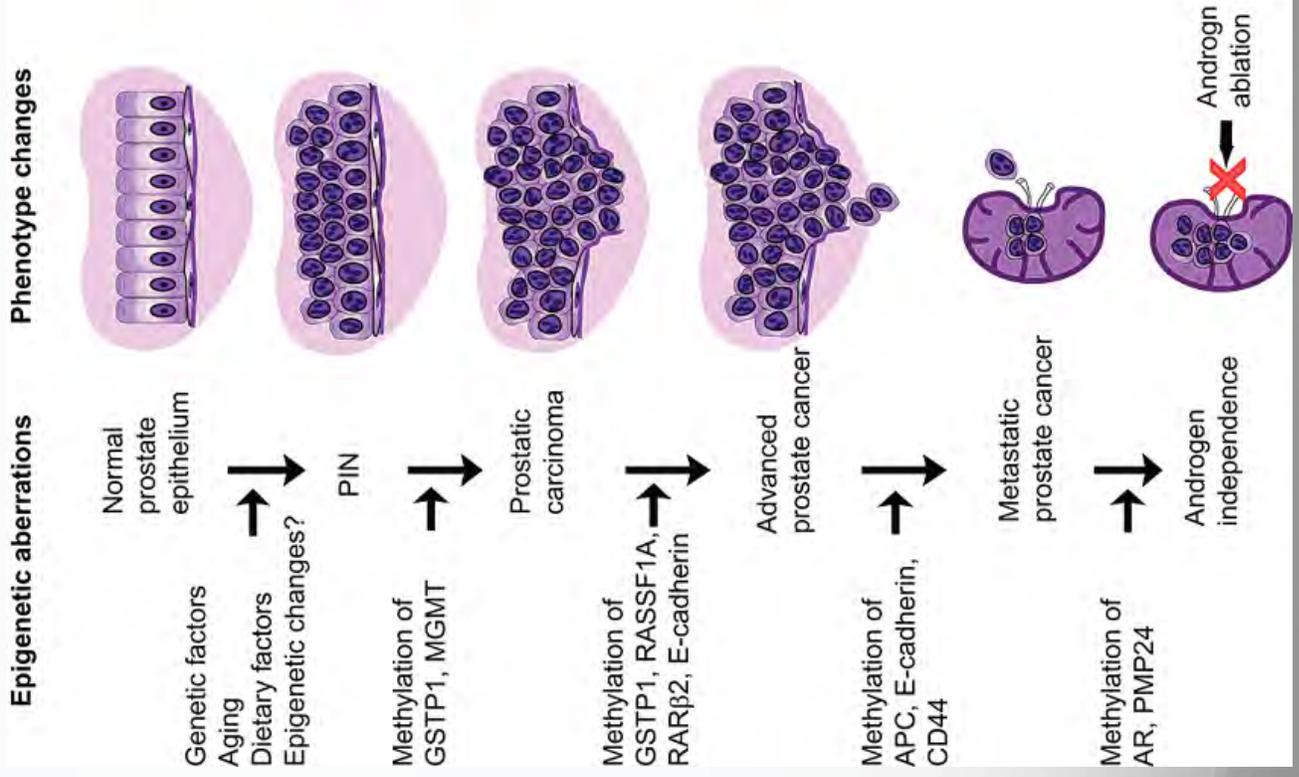
Reference	Cell line	ACN	Outcome	Primary Result
Kim et al.	H <sub>2</sub> O <sub>2</sub> activated neuron	Sweet and tart cherry phenolic extracts (3-220mg/100g) X	Impact on neuronal oxidative stress	neuronal cell viability oxidative stress
Kang et al.	Human colon cancer (HT 29 and HCT 116)	ANC (0-100 µM) Cy (0-250 µM)	Inhibition of colon Ca cell growth	cell growth

### Anti-inflammatory effects of cherries in animal models

Reference	Model	Intervention	Outcomes	Results
Kang et al.	APC <sup>Min</sup> mice	Control diet (CD) CD + ANC (800mg/l) CD + Cy (200mg/l) CD + cherry (300g/kg)	Inhibition of intestinal tumor development	frequency and size of cecal adenomas
Tall et al.	Male Sprague Dawley rats*	CD CD + ANC (15mg/kg) CD + ANC (85mg/kg) CD + ANC (400mg/kg)	ACN from tart cherries on inflammation-induced pain behavior in rats	inflammation-induced thermal hyperalgesia mechanical hyperalgesia paw edema
He et al.	Male Sprague Dawley rats**	Control diet (CD) CD + ANC (10mg/kg) CD + ANC (20mg/kg) CD + ANC (40mg/kg)	Investigate the anti-inflammatory and anti-oxidative effects	TNF-α and PEG2 in serum levels anti-oxidant status

# Activation: NF-κB and ROS

Reference	Cell line	ACN	Dose	Outcome	Primary Results
Wang et al.	THP-1 activated macrophages	C3G	100µM x 24 hrs	Determine anti-inflammatory mechanism	<ul style="list-style-type: none"> <li>↑iNOS and PGE2 mRNA and protein levels</li> <li>↑NF-κB binding activity</li> <li>↑IκBα phosphorylation</li> </ul>
Choi et al.	H <sub>2</sub> O <sub>2</sub> activated human diploid fibroblast (WI-38)	Cy	0.5-10.0 µg/ml	Examine the anti-aging effects of Cy	<ul style="list-style-type: none"> <li>↑NF-κB, COX-2, iNOS expression</li> <li>↑lipid peroxidation</li> <li>↓WI-38 cell life span</li> </ul>
Acquariva et al.	DNA derived from plasmid (pBR322)	Cy C3G	100 200 200 µmol/L	Effects on DNA cleavage and free radical scavenging capacity	<ul style="list-style-type: none"> <li>↑DNA cleavage</li> <li>↑free radical scavenging (dose dependent)</li> </ul>
Karlesen et al.	120 healthy adults	Placebo Medox ACN supplement	300mg/day x 3 wks	ANC supplementation affect on NF-κB activation	<ul style="list-style-type: none"> <li>↑NF-κB activation</li> <li>↑IL-8, RANTES, and IFNα</li> </ul>



# ACN Potential role in the Hallmarks of Cancer



**025 Oregon Blueberry Promotion in India**

*Attachment 1: Photos of Promotion*



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Big Girl BLUEBERRY

Blueberry products on display



**026 Effects of Postharvest Treatment in Reduction of Salmonella and E. coli surrogates in Hazelnuts**

*Attachment 1: Final Technical Report*

# Final Hazelnut Report

Lisa D. Weller  
September 20, 2012

**ABSTRACT:** This study investigated the effectiveness of three food-safe chemicals as sanitizers for the surface of post harvest in-shell hazelnuts. In Phase I, freshly harvested hazelnuts were exposed to water, sodium hypochlorite (25ppm and 50ppm), peroxyacetic acid (80ppm and 120ppm), and acidified sodium chlorite (990ppm). In Phase II, clean hazelnuts were inoculated with high levels of *Salmonella panama* cells, then exposed to water, sodium hypochlorite (25ppm and 50ppm), peroxyacetic acid (80ppm and 120ppm), and acidified sodium chlorite (450ppm, 830ppm, 1013ppm). The post-treatment log population means were analyzed and compared to untreated control samples within each phase. The amount of excess dirt had a significant effect on the population reduction capability of all of the treatments due to the physical removal of microorganisms by the treatment sprays. The bactericidal activities of the chemicals were best represented during the Phase II study when the chemical tests were conducted on hazelnuts lacking excess dirt. The acidified sodium chlorite treatments consistently resulted in the highest reductions in log population means, regardless of the amount of excess dirt on the shell surfaces.

## PHASE I

### INTRODUCTION

The purpose of Phase I was to investigate the effects of three chemicals on the natural microbial population found on the surfaces of post-harvest, in-shell hazelnuts. Exploratory research conducted on hazelnuts from the 2010 harvest (data not shown) allowed for selecting the chemicals analyzed during this investigation. Phase I involved applying sodium hypochlorite (NaOCl), peroxyacetic acid (PAA), and acidified sodium chlorite (ASC) to hazelnuts that were gathered during two separate times during the fall 2011 harvest. The results from the two testing rounds of Phase I were reported separately due to large differences in the microbial populations between the two experimental groups.

### MATERIALS & METHODS

#### Hazelnut samples

Testing Round 1 (TR1) and Testing Round 2 (TR2) of Phase I, took place during the 2011 hazelnut harvest. Tim Newkirk (Willamette Filbert Growers, Newberg, OR) provided the hazelnuts, which were large but of undetermined variety. The hazelnuts were gathered during the third week of September (Testing Round 1) and the second week of October (Testing Round 2), 2011. The hazelnut shells were visually inspected for cracks, holes, and other abrasions to ensure that the shells were undamaged.

#### Chemical Treatments

The treated hazelnuts were rinsed with potable water, then sprayed with one of five chemical treatment solutions (NaOCl-25ppm, NaOCl-50ppm, PAA-80ppm, PAA-120ppm, or ACS-990ppm). During TR1 and TR2, citric acid (30% wt/vol.) was used to adjust the NaOCl pH to  $6.5 \pm 0.10$  and the ASC to  $3.1 \pm 0.10$ .

The non-treated Control group represented the average microbial population found on hazelnut surfaces just after harvest, as they would generally enter a processing facility. The Rinse Only treatment, which had excess dirt and debris removed, represented the average microbial population found on hazelnuts that undergo a tap water rinse, but no chemical treatment. The Water treatment consisted of hazelnuts rinsed with tap water, then sprayed with tap water (same spray procedure as chemical treatments). The Water treatment represented the decrease in microbial population that was due to the physical removal of microorganisms during the spraying procedure and had no bactericidal effects.

### **Microbial Enumeration - Determination of bacterial population**

Hazelnut shell populations were determined using the conventional plate count method (FDA/AOAC Bacterial Analytical Manual 8<sup>th</sup> ed., 1995 + Revision A, 1998). All treatment and control samples weighed 50 g and contained 14 hazelnuts. The samples were placed into 50 ml sterile phosphate-buffered water (PW; VWR International, LLC) and serially diluted. Sample dilutions were plated in duplicate using the pour-plate method with standard plate count agar (PCA; VWR International, LLC) and incubated at 35°C for 36-48 hours. Two plates from the lowest dilution containing ~25-250 colonies in each sample were used to calculate the average bacterial populations on the hazelnuts. Results were reported in colony forming units (CFU) per gram and later converted to CFU per hazelnut.

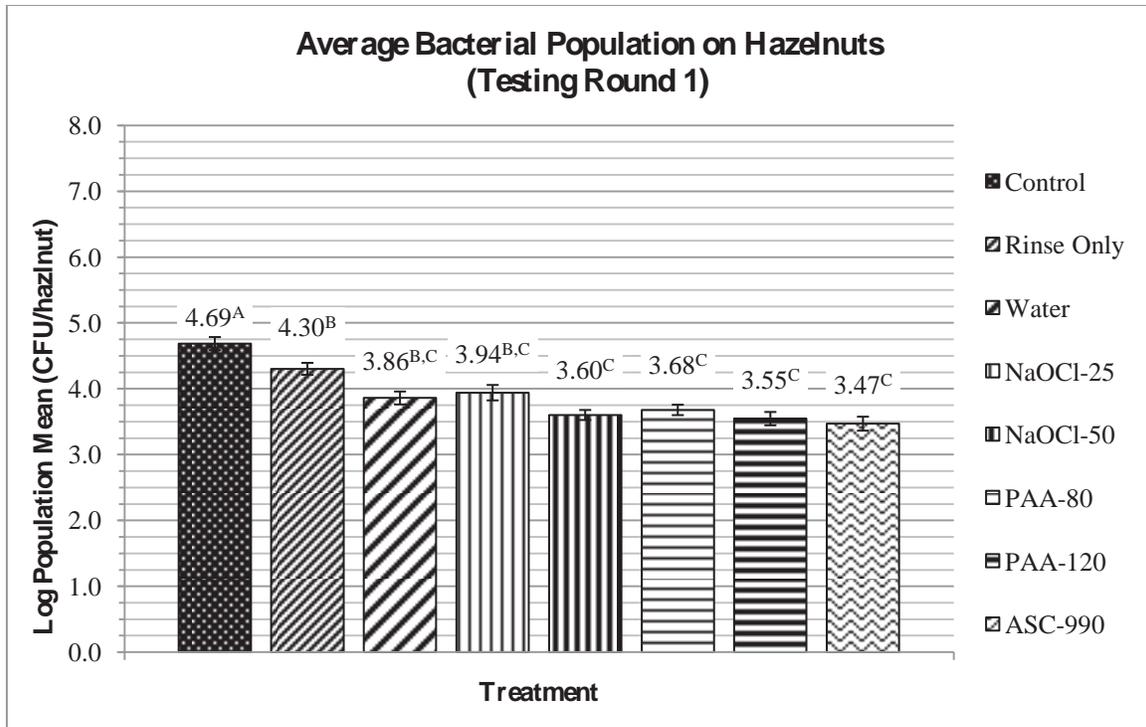
## **RESULTS & DISCUSSION**

### **Hazelnut Testing Round 1 (before rain).**

Testing Round 1 was conducted on hazelnuts gathered early in the 2011 harvest while the ground was still relatively dry. The Control population mean after ten trials was 4.69 log CFU/hazelnut. Treating the hazelnuts with only a water rinse (Rinse Only), a water rinse before a water spray (Water), or a water rinse and a chemical spray (NaOCl-25ppm, NaOCl-50ppm, PAA-80ppm, PAA-120ppm, ASC-990ppm), resulted in population means listed on Graph 1 and Table 1. The Rinse Only, Water and all of the chemical treatments resulted in population means that were significantly different from the Control population mean. However, there was no significant difference in total microbial populations between hazelnuts treated with a water rinse and water spray (Water) or with a water rinse and any of the five chemical sprays ( $P \leq 0.05$ ). The population means of the Rinse Only, Water, and the NaOCl-25ppm treatments were also statistically comparable to one another.

Graph 2 shows the reduction in population means of each of the treatment groups compared to the Control mean. The ASC-990ppm and PAA-120ppm treatments resulted in the greatest reduction compared to the Control. The PAA-80ppm and NaOCl-50ppm treatments resulted in slightly lower population reductions, and the NaOCl-25ppm, Water, and Rinse Only treatments resulted in the lowest reductions. The five chemical treatments resulted in log population reductions between 0.74-1.22, but all of the treatments were statistically comparable to the Water treatment (Water reduction: 0.83 log).

Due to the significant log reduction by the Rinse Only treatment and by the similarity in log reductions by the Water and chemical treatments, it appears that the main cause of microbial population reduction was the physical removal of dirt and debris on the surfaces of the hazelnuts.



**Graph 1**

The microbial population means (CFU/hazelnut) for each treatment group with error bars representing the standard error of the means from  $n$  samples of each treatment. ( $P \leq 0.05$ )

Control  $n=10$ , Rinse Only  $n=10$ , Water  $n=4$ , NaOCl-25  $n=5$ , NaOCl-50  $n=5$ , PAA-80  $n=5$ , PAA-120  $n=5$ , ASC-990  $n=5$

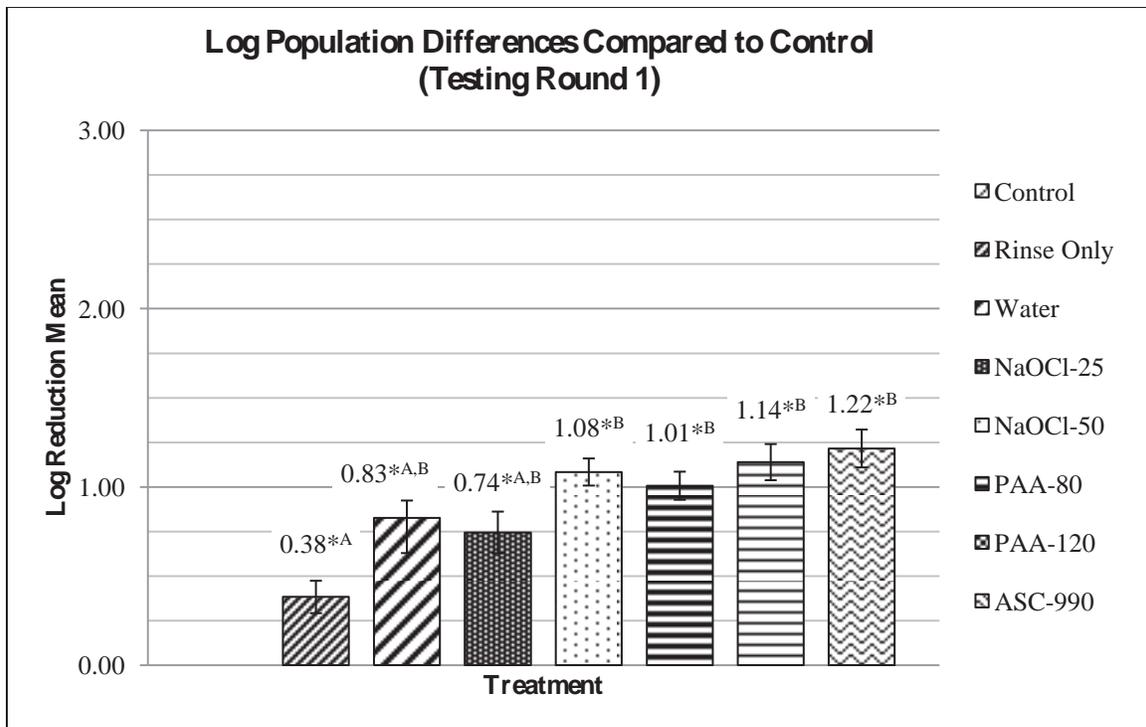
<sup>A-C</sup> Values with different letters differ significantly ( $P \leq 0.05$ )

Treatment	Log Population $\pm$ SE	95% Confidence Int.	Standard Deviation
Control	4.69 $\pm$ 0.10	$\pm$ 0.20	0.32
Rinse Only	4.30 $\pm$ 0.09	$\pm$ 0.18	0.29
Water	3.86 $\pm$ 0.10	$\pm$ 0.19	0.20
NaOCl-25	3.94 $\pm$ 0.12	$\pm$ 0.23	0.26
NaOCl-50	3.60 $\pm$ 0.08	$\pm$ 0.15	0.17
PAA-80	3.68 $\pm$ 0.08	$\pm$ 0.15	0.18
PAA-120	3.55 $\pm$ 0.10	$\pm$ 0.20	0.23
ASC-990	3.47 $\pm$ 0.11	$\pm$ 0.21	0.24

**Table 1**

Microbial population means (CFU/hazelnut) for each treatment group. Values represent the means  $\pm$  the standard error of the means from  $n$  samples of each treatment.

Control  $n=10$ , Rinse Only  $n=10$ , Water  $n=4$ , NaOCl-25  $n=5$ , NaOCl-50  $n=5$ , PAA-80  $n=5$ , PAA-120  $n=5$ , ASC-990  $n=5$



**Graph 2**

The average reduction in microbial population means for each treatment group compared to the Control mean. Error bars represent the standard error of the mean from  $n$  samples of each treatment ( $P \leq 0.05$ )

Rinse Only  $n=10$ , Water  $n=4$ , NaOCl-25  $n=5$ , NaOCl-50  $n=5$ , PAA-80  $n=5$ , PAA-120  $n=5$ , ASC-990  $n=5$

<sup>A-B</sup> Values with different letters differ significantly ( $P \leq 0.05$ )

\*All values are significantly lower than the Control mean ( $P \leq 0.05$ )

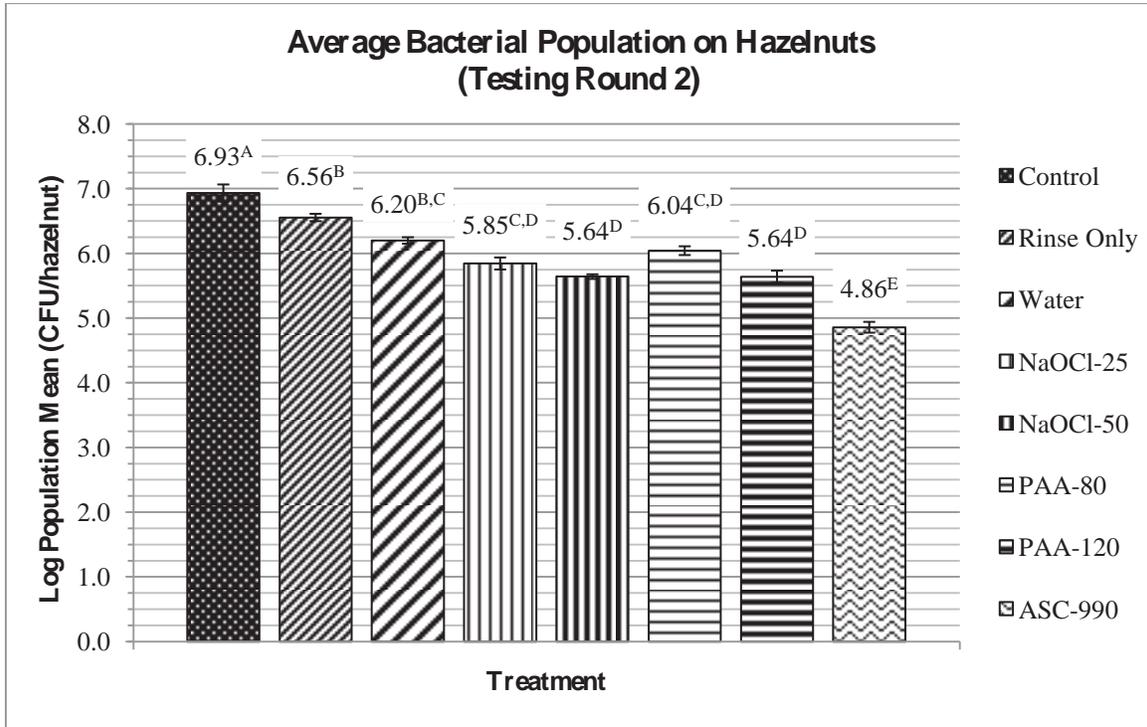
### Hazelnut Testing Round 2 (after rain).

Testing Round 2 was conducted on hazelnuts gathered later in the 2011 harvest after the rain had caused the ground to become muddy. This increased the total microbial population compared to TR1 due to the excess dirt attached to the hazelnuts

During TR2, the average Control population after ten trials was 6.93 CFU/hazelnut, which was significantly higher than the other treatment group populations. The population means for the Rinse Only, Water, and the five chemical treatments are listed in Graph 3 and Table 2. The population means of NaOCl-25ppm, NaOCl-50ppm, PAA-80ppm, and PAA-120ppm were all statistically similar to one another, but significantly higher than the ASC-990ppm population mean ( $P \leq 0.05$ ). The Rinse Only and the Water treatments were statistically similar, as were the Water and the NaOCl-25ppm treatments.

Graph 4 shows the reduction in population means of each of the treatment groups compared to the Control population mean. All of the treatments groups significantly lowered the microbial population on the surfaces of the hazelnuts compared to the untreated Control. The NaOCl-50ppm, PAA-120ppm, and ASC-990ppm treatments were the only three treatments to show significant population reductions compared to the Control, Rinse Only, and the Water

treatment. The ASC-990ppm reduced the population by 2.08 log, which was a significantly greater reduction than the other treatments. The NaOCl-25ppm, NaOCl-50ppm, PAA-80ppm, and PAA-120ppm resulted in statistically comparable population reductions that ranged from 1.09-1.29 log less than the Control mean. However, the NaOCl-25ppm and PAA-80ppm treatments were also statistically similar to the Water treatment, which achieved a 0.73 log reduction.



**Graph 3**

Microbial population means (CFU/hazelnut) for each treatment group  $\pm$  SE ( $P \leq 0.05$ ). Values represent the means  $\pm$  the standard error of the means from  $n$  samples of each treatment.

Control  $n=8$ , Rinse Only  $n=7$ , Water  $n=7$ , NaOCl-25  $n=5$ , NaOCl-50  $n=5$ , PAA-80  $n=5$ , PAA-120  $n=5$ , ASC-990  $n=5$

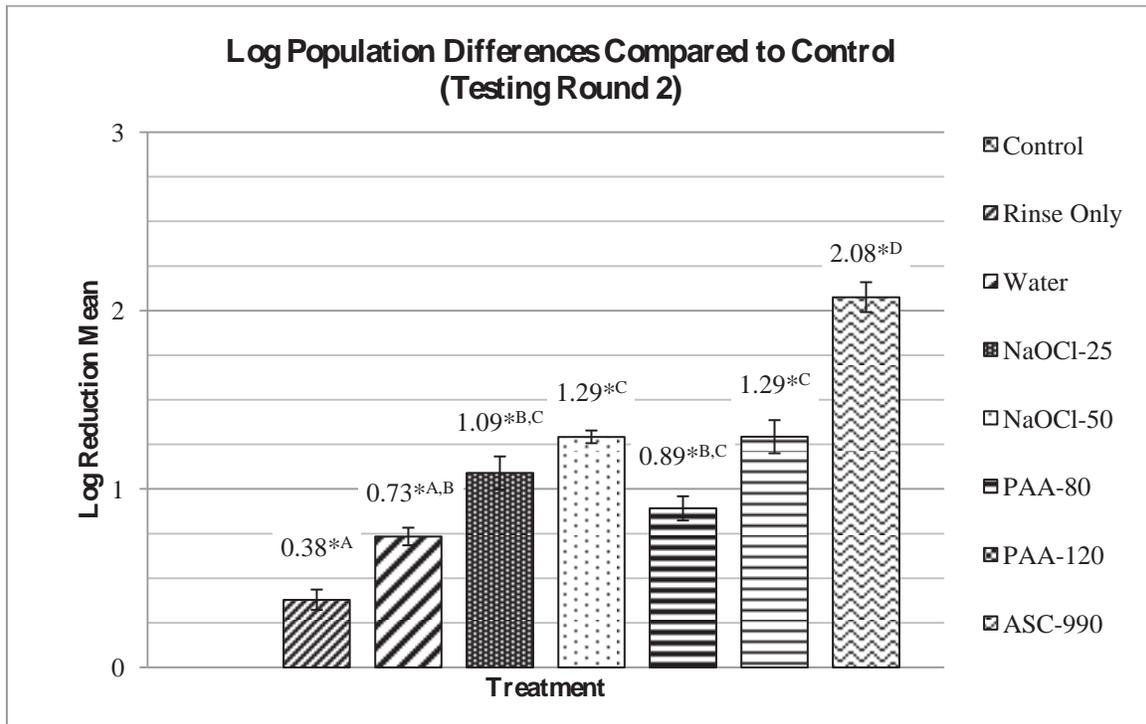
<sup>A-E</sup> Values with different letters differ significantly ( $P \leq 0.05$ )

Treatment	Population $\pm$ SE	95% Confidence Int.	Standard Deviation
Control	6.93 $\pm$ 0.13	$\pm$ 0.26	0.37
Rinse Only	6.56 $\pm$ 0.06	$\pm$ 0.11	0.15
Water	6.20 $\pm$ 0.05	$\pm$ 0.10	0.13
NaOCl-25	5.85 $\pm$ 0.12	$\pm$ 0.18	0.21
NaOCl-50	5.64 $\pm$ 0.09	$\pm$ 0.07	0.08
PAA-80	6.04 $\pm$ 0.07	$\pm$ 0.13	0.15
PAA-120	5.64 $\pm$ 0.09	$\pm$ 0.18	0.21
ASC-990	4.86 $\pm$ 0.08	$\pm$ 0.16	0.19

**Table 2**

Microbial population means (CFU/hazelnut) for each treatment group. Values represent the means  $\pm$  the standard error of the means from  $n$  samples of each treatment.

Control  $n=8$ , Rinse Only  $n=7$ , Water  $n=7$ , NaOCl-25  $n=5$ , NaOCl-50  $n=5$ , PAA-80  $n=5$ , PAA-120  $n=5$ , ASC-990  $n=5$



**Graph 4**

The average reduction in microbial population means for each treatment group compared to the Control mean. Error bars represent the standard error of the mean from  $n$  samples of each treatment ( $P \leq 0.05$ )

Rinse Only  $n=7$ , Water  $n=7$ , NaOCl-25  $n=5$ , NaOCl-50  $n=5$ , PAA-80  $n=5$ , PAA-120  $n=5$ , ASC-990  $n=5$

<sup>A-D</sup> Values with different letters differ significantly ( $P \leq 0.05$ )

\*All values are significantly lower than the Control population

### **Comparison of Testing Rounds 1 and 2.**

Results from TR1 and TR2 both show that the physical removal of dirt and debris with a water rinse was able to significantly reduce the average microbial population on the surfaces of the post-harvest hazelnuts. Rinsing the hazelnuts and then spraying them with water, NaOCl-25ppm, or PAA-80ppm showed comparable log reductions within each testing round. Although TR1 showed no significant difference between the population reductions caused by the five chemicals, NaOCl-50ppm, PAA-120ppm, and ASC-990ppm had the lowest population means in both TR1 and TR2.

### **Statistical Analysis and Error.**

In TR1, the population means  $\pm$  SE were calculated using the average log population of 10 samples for the Control, 10 samples for the Rinse Only, four samples for the Water, and five samples for each of the chemical treatments. In TR2, the population means  $\pm$  SE were calculated using the average log population of eight samples for the Control, seven samples for the Rinse Only, seven samples for the Water, and five samples for each of the chemical treatments. Comparison of the treatments and the statistical significance of the data were analyzed in SAS software using a regression model and Tukey's Studentized Range test in a GLM procedure. The standard errors and the 95% CI of the population means were calculated in Microsoft Excel.

Each of the samples in Phase I contained 14 hazelnuts. Due to the small sample sizes, the standard errors of the means and the 95% confidence intervals were broad and showed little difference between the efficacies of each of the chemical treatments. Greater sample sizes could minimize the standard errors and allow for better comparison of the chemicals treatments.

## PHASE II

### INTRODUCTION

The purpose of Phase II was to investigate the effects of the three chemicals tested in Phase I on hazelnuts inoculated with *Salmonella panama*. Applying *S. panama* to hazelnut surfaces created a controlled environment that allowed us to investigate the lethality of the chemicals against a pathogen on the surface of hazelnuts. Known amounts of *S. panama* were inoculated into hazelnuts, then chemical treatments were used to sanitize the pathogen-covered hazelnuts. The chemical treatments included sodium hypochlorite sodium hypochlorite (NaOCl), peroxyacetic acid (PAA), and acidified sodium chlorite (ASC).

### MATERIALS & METHODS

#### Hazelnut samples

Tim Newkirk (Willamette Filbert Growers, Newberg, OR) provided the hazelnuts for Phase II, which were large but of undetermined variety. The hazelnuts were collected, processed (process undisclosed) and dried during the 2011 hazelnut harvest, then stored for 8-10 months in large bags that allowed for ventilation.

Hazelnuts were sprayed with 70% ethanol to reduce the background microbial populations and the shells were visually inspected for cracks, holes, and other abrasions before and after the ethanol treatment. Three rinses with sterile deionized water removed residual ethanol from the hazelnuts. The hazelnuts dried in sterile 13"x9" Pyrex pans in a bio safety hood for 24 hours after cleaning.

#### Inoculum Preparation.

The Food Microbiology laboratory at the Oregon Department of Agriculture in Portland, OR provided the *S. panama* culture used in this study. The culture was streaked for isolation on tryptic soy agar (TSA; VWR International, LLC) and incubated for 24 hrs at 35°C. A single selected colony incubated for 24 hours at 35°C in 10ml tryptic soy broth (TSB; VWR International, LLC) created a stock culture of *S. panama*. An aliquot of 100ul of the stock culture was transferred to 10ml TSB and incubated for 24 hours at 35°C. After 24 hours, 3ml aliquots were transferred to two 500ml shake flasks containing 300ml of TSB each. The flasks were shaken at 100 rpm for 18 hours at 37°C. The culture was centrifuged in 50ml centrifuge tubes and brought to 2700ml with phosphate-buffered water (PW; VWR International, LLC). A spectrophotometer provided by Oregon State University, Department of Food Science and Technology, was used to monitor the growth of the *S. panama* throughout the inoculum preparation process. The optical densities of the cultures were used to estimate an inoculum log population mean of ~8.35 CFU/ml and direct plating confirmed the log inoculum population mean to be 8.42 CFU/ml (data not shown).

#### Hazelnut Inoculation.

For each inoculation batch, 2700ml of buffer containing ~8.42 log *S. panama* cells was poured over ~800 clean hazelnuts that had been placed in a sterile stainless steel pot. The hazelnuts were mixed with a sterile stainless steel spoon immediately after the *S. panama* was added, after six hours of soaking, after 21 hours of soaking (15 hours after the first stir), and again immediately before removal at a total soak time of 27 hours (6 hours after the second stir).

The hazelnuts were placed in four sterile 13"x9" Pyrex pans lined with sterile paper towels and allowed to dry in a bio safety hood for 66 hours (over the weekend).

After drying, the hazelnuts were placed in a large sterile stainless steel pot and stored in the corner of a bio safety hood until testing. The inoculation process was repeated every week and unused hazelnuts were autoclaved and discarded at the end of testing each week. This was to ensure that the populations did not decrease during storage.

### **Chemical Treatments**

Phase II consisted of nine treatment groups, including seven chemical treatments: Control, Water, NaOCl-25ppm (sodium hypochlorite, 25ppm), NaOCl-50ppm (sodium hypochlorite, 50ppm), PAA-80ppm (peroxyacetic acid, 80ppm), PAA-120ppm (peroxyacetic acid, 120ppm), ACS-450ppm (acidified sodium chlorite, 450ppm), ASC-830ppm (acidified sodium chlorite, 830ppm), and ASC-1013ppm (acidified sodium chlorite, 1013ppm). During Phase II, citric acid (30% wt/vol.) was used to adjust the NaOCl pH to  $6.5 \pm 0.05$  and the ASC to  $3.85 \pm 0.05$ .

Sample units of 45 hazelnuts were placed on sterile racks in a bio safety hood and sprayed with either water or one of the chemical treatments. Each hazelnut was gently rotated by hand during spraying to ensure that the entire surface was exposed to the treatment. Each hazelnut received ~1.85ml of the treatment liquid. The hazelnuts dried in the hood for about five minutes to allow excess liquid to drip off, but the hazelnuts were not thoroughly dried before enumeration.

The population mean of the Control treatment group was used as the background for determining the reduction of the population means for the chemical treatments. The Water treatment consisted of hazelnuts that were sprayed with deionized water using the same spray procedure as the chemical treatments. The Water treatment demonstrated the decrease in *S panama* population that was due to the physical removal of microorganisms during the spraying procedure and had no bactericidal effects.

### **Microbial Enumeration - Determination of bacterial population.**

After treatment, each sample unit of 45 hazelnuts was placed into a sterile 500ml glass bottle (KIMAX) containing 135ml sterile phosphate-buffered water (PW; VWR International, LLC) and 22g of 425-600um glass beads (Sigma-Aldrich). The samples were shaken vigorously by hand, then serially diluted. *S panama* populations were determined using a two-step process plating process: Sample dilutions were plated in duplicate using direct surface plating on non-selective TSA plates, incubated for three hours at 35°C to allow recovery of injured cells, then overlaid with 14ml selective xylose lysine deoxycholate agar (XLD agar; HiMedia Laboratories) and incubated for an additional 21 hours at 35°C. Two plates from the lowest dilution containing ~25-250 colonies in each sample were used to calculate the average bacterial populations on the hazelnuts. Results were reported in colony forming units (CFU) per 1/3 hazelnut and later converted to CFU per hazelnut.

Note: As a control parameter, sample dilutions were also plated in duplicate on a second set of TSA plates that were incubated for 24 hours at 35°C, but received no overlay. These data were used to ensure that the selective overlay step was effective in inhibiting background microflora. The population mean results from these plates are included in the Appendix.

## RESULTS & DISCUSSION

### Chemical Treatment of *S. panama* on Hazelnuts

After inoculation, the *S. panama* Control population mean was 8.03 log CFU/hazelnut. The population mean of the Water treatment was not significantly less than the Control mean. The population means of the chemical treatments were all significantly lower than the Control and Water treatments and are shown in Graph 5 and Table 3.

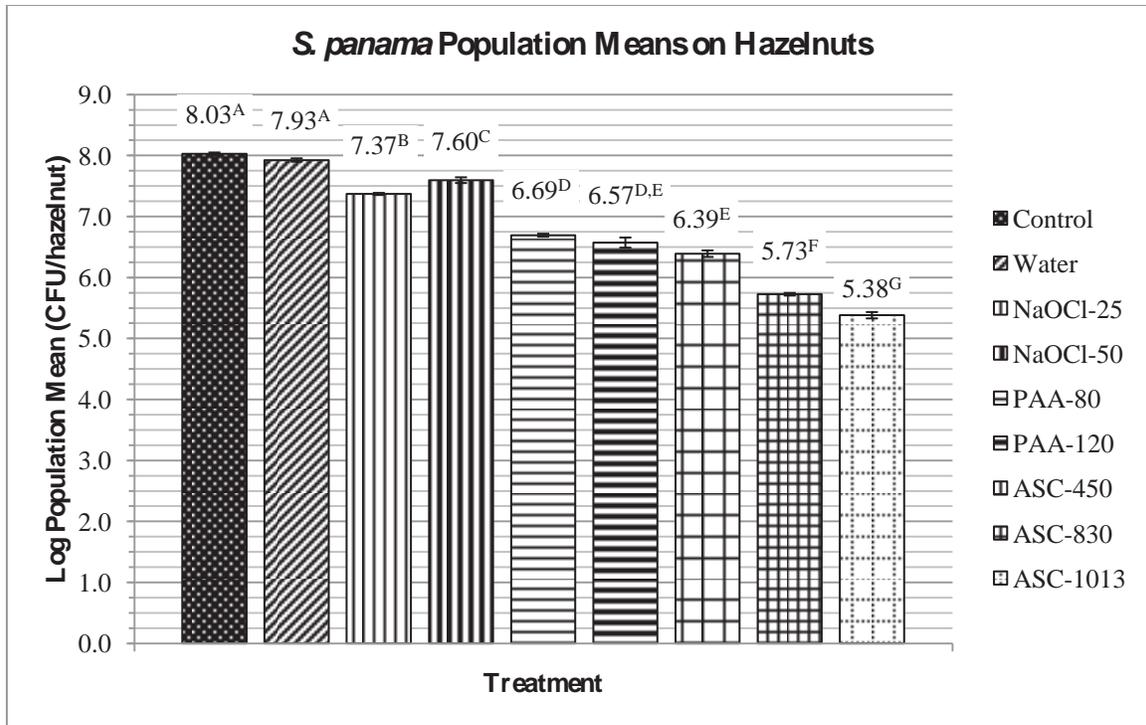
Graph 6 shows the reduction in population means of each of the treatment groups compared to the Control population mean. The Water treatment resulted in a log population mean 0.10 log less than the Control mean, which was statistically insignificant.

All of the treatments groups significantly lowered the microbial population on the surfaces of the hazelnuts compared to the untreated Control. The ASC-1013ppm resulted in a population reduction of 2.65 log, which was a significantly greater reduction than the other treatments. The ASC-830ppm treatment resulted in the second largest population reduction (2.30 log), which was a significantly larger reduction than the NaOCl-25ppm, NaOCl-50ppm, PAA-80ppm, and PAA-120ppm, and ASC-450ppm treatments. The PAA-80ppm and PAA-120ppm treatments resulted in log population reductions of 1.34 and 1.46, respectively, and were statistically comparable to each other, though the PAA-120ppm was also comparable to the log reduction from ASC-450ppm (1.64). The NaOCl-25ppm and NaOCl-50ppm treatments produced the lowest log population reductions, but were significantly more effective than the Water treatment

### Statistical Analysis & Error.

The population means  $\pm$  SE were calculated using the average log population of 15 samples for the Control, 15 samples for the Water, and six samples for each of the chemical treatments (except NaOCl-50ppm). The NaOCl-50ppm treatment was repeated three additional times due to inconsistent results from the first six samples. Comparison of the treatments and the statistical significance of the data were analyzed in SAS software using a regression model and Tukey's Studentized Range test in a GLM procedure. The standard errors and the 95% CI of the population means were calculated in Microsoft Excel.

Each of the samples in Phase II contained 45 hazelnuts, which resulted in small standard errors of the mean and 95% confidence intervals.



**Graph 5**

*S. panama* population means (CFU/hazelnut) for each treatment group  $\pm$  SE ( $P \leq 0.05$ ). Values represent the means  $\pm$  the standard error of the means from  $n$  samples of each treatment.

Control  $n=15$ , Water  $n=15$ , NaOCl-25  $n=6$ , NaOCl-50  $n=9$ , PAA-80  $n=6$ , PAA-120  $n=6$ , ASC-450  $n=6$ , ASC-830  $n=6$ , ASC-1013  $n=6$

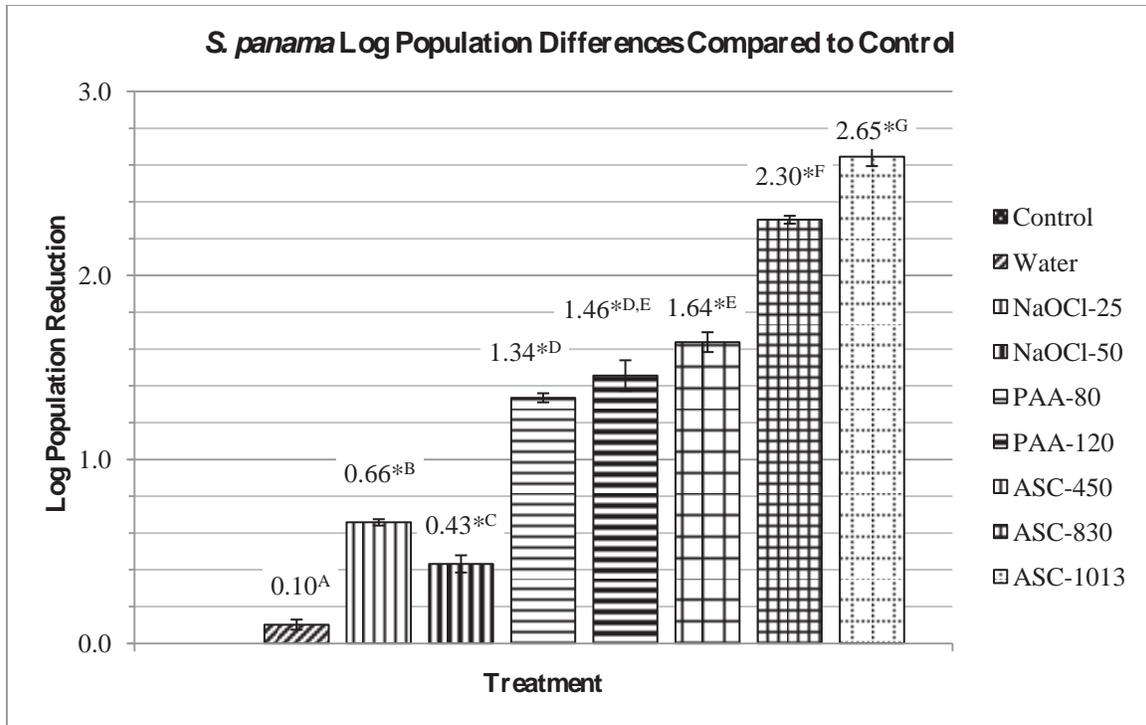
<sup>A-G</sup>Values with different letters differ significantly ( $P \leq 0.05$ ).

Treatment	Population $\pm$ SE	95% Confidence Int.	Standard Deviation
Control	8.03 $\pm$ 0.02	$\pm$ 0.04	0.09
Water	7.93 $\pm$ 0.03	$\pm$ 0.05	0.11
NaOCl-25	7.37 $\pm$ 0.02	$\pm$ 0.03	0.04
NaOCl-50	7.60 $\pm$ 0.05	$\pm$ 0.09	0.14
PAA-80	6.69 $\pm$ 0.02	$\pm$ 0.05	0.06
PAA-120	6.57 $\pm$ 0.08	$\pm$ 0.16	0.20
ASC-450	6.39 $\pm$ 0.05	$\pm$ 0.11	0.13
ASC-830	5.73 $\pm$ 0.02	$\pm$ 0.04	0.05
ASC-1013	5.38 $\pm$ 0.05	$\pm$ 0.10	0.13

**Table 3**

*S. panama* population means (CFU/hazelnut) for each treatment group. Values represent the means  $\pm$  the standard error of the means from  $n$  samples of each treatment.

Control  $n=15$ , Water  $n=15$ , NaOCl-25  $n=6$ , NaOCl-50  $n=9$ , PAA-80  $n=6$ , PAA-120  $n=6$ , ASC-450  $n=6$ , ASC-830  $n=6$ , ASC-1013  $n=6$



**Graph 6**

The average reduction in *S. panama* population means for each treatment group compared to the Control. Error bars represent the standard error of the mean from  $n$  samples of each treatment ( $P \leq 0.05$ )

Water  $n=15$ , NaOCl-25  $n=6$ , NaOCl-50  $n=9$ , PAA-80  $n=6$ , PAA-120  $n=6$ , ASC-450  $n=6$ , ASC-830  $n=6$ , ASC-1013  $n=6$

<sup>A-G</sup>Values with different letters differ significantly ( $P \leq 0.05$ )

\*All values are significantly lower than the Control population except for Water

## CONCLUSION (Phase I & Phase II)

Both Phase I and Phase II show that acidified sodium chlorite consistently resulted in the largest average microbial population reductions compared to the other chemical treatments. The peroxyacetic acid treatments resulted in the second highest log population reductions, and the sodium hypochlorite resulted in the lowest log population reductions.

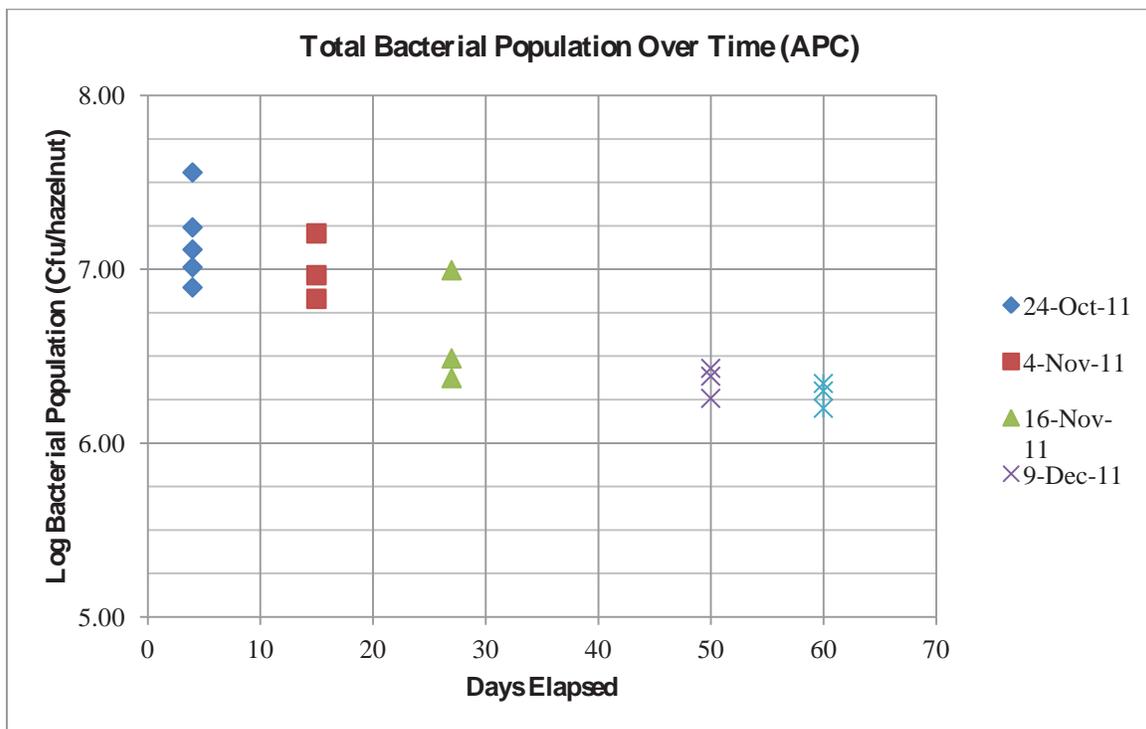
Phase I results indicated that all of the chemicals produced relatively similar population reductions and that the chemicals were not significantly more effective than the Water treatment. In addition, the Rinse Only and Water treatments resulted in significantly lower population means than the Control. Conversely, the Water treatment in Phase II was not significantly different than the Control, the chemical treatments were significantly more effective than the Water, and the efficacy of each of the chemical treatments was significantly different from most of the other treatments. The observations from Phase I imply that the amount of excess debris on the surface of a hazelnut shell has a strong effect on the total microbial population, and that the population can be significantly reduced by removing the debris. Phase II observations show that the chemicals used in this study have the ability to reduced bacterial populations by significantly different amounts, and that acidified sodium chlorite was significantly more effective than any of the other treatments.

## APPENDIX

### I. Natural Bacteria Over Time.

Graph I shows the log population decrease of natural hazelnut microflora on hazelnuts stored over a two month period. These hazelnuts came from the same harvest bag as the hazelnuts used in Phase I, Testing Round 2. After 56 days (Day 4-Day 60) the log population mean had decreased by 0.88 log CFU/hazelnut.

The log population means were recorded based upon days elapsed since the hazelnuts were harvested. On Day 4 the log population mean of five samples were  $7.16 \pm 0.11$ . On Day 15, Day 27, Day 50, and Day 60 the log population means of three samples were  $7.00 \pm 0.11$ ,  $6.62 \pm 0.19$ ,  $6.36 \pm 0.05$ ,  $6.28 \pm 0.04$ , respectively. The means  $\pm$  the standard errors of the means were calculated in Excel.



**Graph I**

Date	Day	Individual Sample Log Populations
24 Oct. 2011	4	7.24, 7.56, 7.01, 6.90, 7.11
04 Nov. 2011	15	7.00, 7.21, 6.83
16 Nov. 2011	27	7.00, 6.49, 6.37
09 Dec. 2011	50	6.39, 6.43, 6.26
19 Dec. 2011	60	6.20, 6.34, 6.30

## II. Chemical Treatment of *S. panama*-Inoculated Hazelnuts, No Overlay

After inoculation, the total populations on the hazelnuts inoculated with *S. panama* were slightly higher when no selective overlay was present. The Control population mean was 8.07 log CFU/hazelnut, 0.04 log higher than the selective overlay plates. As with the *S. panama*-selected plates, the population mean of the Water treatment was not significantly less than the Control mean. The population means of the chemical treatments were all significantly lower than the Control and Water treatments and the values are shown in Table I, below. The statistical comparisons of the treatment groups are in agreement with the selective overlay plates.

Treatment	Population $\pm$ SE	95% Confidence Int.	Standard Deviation
Control	8.07 $\pm$ 0.03 <sup>A</sup>	$\pm$ 0.06	0.12
Water	7.96 $\pm$ 0.02 <sup>A</sup>	$\pm$ 0.05	0.09
NaOCl-25	7.40 $\pm$ 0.02 <sup>B</sup>	$\pm$ 0.03	0.04
NaOCl-50	7.63 $\pm$ 0.05 <sup>C</sup>	$\pm$ 0.10	0.15
PAA-80	6.71 $\pm$ 0.03 <sup>D</sup>	$\pm$ 0.05	0.07
PAA-120	6.62 $\pm$ 0.08 <sup>D,E</sup>	$\pm$ 0.16	0.20
ASC-450	6.42 $\pm$ 0.06 <sup>E</sup>	$\pm$ 0.12	0.14
ASC-830	5.94 $\pm$ 0.10 <sup>F</sup>	$\pm$ 0.20	0.25
ASC-1013	5.51 $\pm$ 0.03 <sup>G</sup>	$\pm$ 0.07	0.08

**Table I**

Total microbial population means (CFU/hazelnut) for each treatment group  $\pm$  SE ( $P \leq 0.05$ ). Values represent the means  $\pm$  the standard error of the means from  $n$  samples of each treatment but with no selective overlay for *S. panama*

Control  $n=15$ , Water  $n=15$ , NaOCl-25  $n=6$ , NaOCl-50  $n=9$ , PAA-80  $n=6$ , PAA-120  $n=6$ , ASC-450  $n=6$ , ASC-830  $n=6$ , ASC-1013  $n=6$

<sup>A-G</sup>Values with different letters differ significantly ( $P \leq 0.05$ )

## III. Legal Limitations of Chemical Concentrations

The chemical concentrations used in this study were chosen based upon several factors. The ASC concentrations were picked based upon the legal limitations and the availability of a stable product from the manufacturers. The citric acid was used to lower the pH of the ASC and NaOCl and not used in specific amounts. The PAA concentrations were chosen in order to investigate the difference in efficacy of two PAA concentrations close to the legal limit. Preliminary research showed significantly less chemical efficacy 40ppm PAA (data not shown). The sodium hypochlorite concentrations were chosen based upon preliminary research showing that 100ppm NaOCl had no additional effect on the microbial population reduction and that NaOCl treatments were less consistent at higher concentrations (data not shown)

The table below lists the legal limitations of each of the chemicals used in this study as well as the Code of Federal Regulations guidance numbers.

Chemical	CFR Guide	PPM limit
Acidified Sodium Chlorite	173.325	500-1200 ppm(pH 2.3-2.9)
Citric Acid	184.1033	None - GRAS
Peroxyacetic Acid	180.1196	<100 ppm
Sodium Hypochlorite	173.315, 205.605	<4 ppm <i>residue</i>

## INDUSTRIAL RECOMMENDATION & FUTURE WORK

### Significance of Water Rinses Prior to Chemical Treatment.

Phase I showed that the average microbial population count of a hazelnut shell was greater when there was more dirt and debris present and that the population significantly decreased when the excess debris was removed with water. In addition, Phase II demonstrated the ability of each sanitizer to kill bacteria while controlling for the physical removal aspect of microbial reduction (i.e. the chemicals were applied to hazelnuts lacking excess debris). The results suggest that the most effective sanitation process for use in industry (using a chemical from this study) would be a spray treatment of 1013ppm acidified sodium chlorite (pH  $2.85 \pm 0.05$ ) applied to hazelnuts lacking all visible excess dirt and debris.

**Advice to the Hazelnut Industry:** We believe that the best processing method for treating hazelnuts would involve removing as much visible dirt as possible by vigorously rinsing the nuts with clean water (multiple rinses may be necessary), letting the excess water drip off or removing it with a blower, then spraying the nuts with at least 1,000 ppm acidified sodium chlorite. The pH of the ASC should be between 2.3 and 2.9.

### Future Work.

The goal of this research project was to investigate the effects of sanitizers on microorganisms on the surfaces of in-shell hazelnuts. The sanitizers were investigated for potential use in the wash step that takes place during hazelnut processing. An ideal hazelnut processing procedure would yield a 4-5 log reduction of *Salmonella* (Industry Handbook for Safe Processing of Nuts, 2010) on the surfaces of post harvest in-shell hazelnuts from the time of harvest to the end of processing.

Maximizing the reduction of microorganisms during washing has been the focus of many hazelnut processors, but exploratory research has shown that drying may also significantly reduce microbial populations. A study of the effects of various drying techniques (e.g. temperature, time, depth of dryer, etc.) on the microbial population on hazelnuts would expand our knowledge of the second main component in hazelnut processing. Furthermore, a complete research investigation of the combined effects of specific sanitizers and drying methods would demonstrate the maximum potential of our current hazelnut processing procedures for reducing the microbial population on the surfaces of hazelnut shells.

**027 Oregon Fresh Blueberries to Korea: Certification Program Implementation and Development**

*Attachment 1:* OR Compliance Agreement for Orchards

*Attachment 2:* OR Compliance Agreement for Growers

*Attachment 3:* Dr. Keum Hee Lee Itinerary – July 2012

*Attachment 4:* ODA Post-Shipping Season Mission Itinerary: Seoul, Korea Nov 2012



## Fresh Blueberries to Republic of Korea Compliance Agreement for Orchards

A. Name and Mailing Address

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B. Commodities Approved: Blueberries from Oregon

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The Oregon Department of Agriculture (ODA) hereby approves

to be registered for exporting fresh blueberries to the Republic of Korea. Blueberries meeting the terms of this agreement are eligible for shipment to a registered Packing House for eventual export to the Republic of Korea providing the steps outlined in section C of this agreement are followed. This approval does not preclude inspection and sampling or testing at the discretion of the destination Republic of Korea Quarantine Inspection Agency (QIA), and rejection if required as a consequence of the findings of that inspection and / or test(s).

This approval and authorization is made subject to compliance with the following requirements.

---

- C. To meet the importation requirements of the Republic of Korea for fresh blueberries, the Orchard shall:
1. Register a compliance agreement with the ODA or USDA Animal and Plant Health Inspection Service (USDA) by March 15th of the proposed year of shipment.
  2. Conduct appropriate monitoring activities for the following pests throughout the growing season (from bud break to fruit harvest): *Monilinia vaccinii-corymbosi* (mummy berry disease), *Argyrotaenia citrana* (orange tortrix), *Choristoneura rosaceana* (oblique banded leaf roller), and *Grapholita packardi* (cherry fruit worm). Monitoring activities may be conducted by the ODA or a crop consultant licensed in the State of Oregon.
    - a. Apply appropriate control measures when the aforementioned pest(s) is detected at levels injurious to the fruit.
    - b. Maintain records of monitoring activities, including trap survey records for the three insect pests, and any applied treatments for one (1) calendar year after the date of the official inspection and audit.
    - c. Make all monitoring and treatment records available for audit upon request by the ODA, USDA, or QIA.

- d. Supply copies of all pest monitoring and treatment records to the registered Packing House(s) that receives fruit from fields approved for export to the Republic of Korea.
3. Provide a map of the field(s) intended for shipment to the ODA or USDA. The map shall include field identification code(s), field location(s), acreage(s), and variety(ies) planted.
4. Allow the ODA or USDA access to the field(s) to conduct inspections and, if necessary, collect samples to test for the presence of *Phytophthora ramorum*, tobacco ringspot virus, and tomato ringspot virus during the growing season (from bud break to fruit harvest). If testing is necessary, the Orchard agrees to suspend shipment of fruit from the field(s) until testing is complete.
5. Have a protocol in place to maintain the identity of the fruit loads from approved fields and to prevent commingling of fruit from non-approved fields with those from approved fields during harvest and during shipment to a registered Packing House.
6. Allow ODA or USDA to audit all necessary records and protocols to ensure compliance with the aforementioned requirements.
7. Consent to inspection by a QIA official, if requested by ODA or USDA, to ensure compliance with the Republic of Korea's "Import Plant Quarantine Requirements for Fresh Blueberry from the State of Oregon, USA".

Noncompliance with the requirements stated herein may result either in suspension or revocation of authorizations. Otherwise, this agreement shall remain in force until revoked by either the Oregon Department of Agriculture or by expiration (see below) and so long as the ownership and management of the Orchard remains unchanged. Revisions may be made as necessary to include, delete, or modify requirements.

\_\_\_\_\_  
 Tel:  
 Fax:

\_\_\_\_\_  
 Oregon Department of Agriculture  
 Tel: 503/986-4620  
 Fax: 503/986-4737

\_\_\_\_\_  
 Effective Date

\_\_\_\_\_  
 Expiration Date



## Fresh Blueberries to Republic of Korea Compliance Agreement for Packing Houses

A. Name and Mailing Address

---

B. Commodities Approved: Blueberries from Oregon

---

The Oregon Department of Agriculture (ODA) hereby

to be registered for exporting fresh blueberries to the Republic of Korea. Blueberries meeting the terms of this agreement are eligible for shipment to the Republic of Korea providing the steps outlined in section C of this agreement are followed. This approval does not preclude inspection and sampling or testing at the discretion of the destination Republic of Korea Quarantine Inspection Agency (QIA), and rejection if required as a consequence of the findings of that inspection and / or test(s).

This approval and authorization is made subject to compliance with the following requirements.

---

- C. To meet the importation requirements of the Republic of Korea for fresh blueberries, the packing house shall:
1. Register a compliance agreement with the ODA or USDA Animal and Plant Health Inspection Service (USDA) by March 1st of the proposed year of shipment.
  2. Follow appropriate protocol(s) to maintain cleanliness and to disinfect the packing house and storage area(s) on a regular basis.
  3. Be equipped with appropriate safeguards, such as insect screens, air curtains, rubber curtains, and/or automatic doors, to prevent pest re-contamination of the fruit prior to shipment for export to the Republic of Korea.
  4. Have protocol(s) in place to prevent commingling of fruit from registered orchards with fruit from non-registered orchards.
  5. Maintain records of fruit shipments received from registered orchards for export to Republic of Korea.
    - a. Assign a unique identifier to each registered orchard from which fruit is received.
    - b. Maintain copies of the pest monitoring and treatment records received from each registered orchard for (1) calendar year after the date of the official inspection and audit.

6. Have protocol(s) in place to remove contaminants such as leaves, twigs, and soil from fruit prior to packing in clamshells for shipment.
7. Label each carton or pallet for export to Republic of Korea with the name or identification code of the Packing House and "For Korea".
8. Label each clamshell with the unique identifier for the registered orchard from which the fruit was received.
9. Consent to an inspection at shipping point of at least 2% of the fruit from each shipment for the following pests: *Monilinia vaccinii-corymbosi* (mummy berry disease), *Argyrotaenia citrana* (orange tortrix), *Choristoneura rosaceana* (oblique banded leaf roller), and *Grapholita packardi* (cherry fruit worm). Shipments in which one or more of these pests are found will be ineligible for export to Republic of Korea.
10. Obtain an official phytosanitary certificate from USDA or ODA to accompany each shipment.
11. Protect fruit from pest re-contamination during shipment by sealing fruit in a shipping container(s). The seal number shall be included on shipping documents. Alternatively, the entire pallet(s) may be wrapped with plastic or a similar material and sealed with official tape obtained from USDA.
12. Allow ODA or USDA to audit all necessary records and protocols to ensure compliance with the aforementioned requirements.
13. Consent to inspection by a QIA official, if requested by ODA or USDA, to ensure compliance with the Republic of Korea's "Import Plant Quarantine Requirements for Fresh Blueberry from the State of Oregon, USA".

Noncompliance with the requirements stated herein may result either in suspension or revocation of authorizations. Otherwise, this agreement shall remain in force until revoked by either Oregon Department of Agriculture or by expiration (see below) and so long as the ownership and management of the Packing House remains unchanged. Revisions may be made as necessary to include, delete, or modify requirements.

\_\_\_\_\_  
 Tel:  
 Fax:

\_\_\_\_\_  
 Oregon Department of Agriculture  
 Tel: 503/986-4620  
 Fax: 503/986-4737

\_\_\_\_\_  
 Effective Date

\_\_\_\_\_  
 Expiration Date

**Itinerary for  
ODA Mission  
Nov. 5<sup>th</sup> ~ 11<sup>th</sup>**

Mr. Jim Cramer / Administrator of ODA  
 Ms. Lindsay B Eng / Certification Development and Program Manager of ODA  
 Mr. Bryan Ostlund / Commissioner of Oregon Blueberry Commission  
 Mr. Paul Norris / President of Norris Farms  
 Ms. Sandy Norris / Norris Farms  
 Mr. Gage Thompson / Associate of Mr. Paul Norris

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**Time schedule**

<b>Nov. 5 (Mon.)</b>	
<b>5:30 PM</b>	Arrival at Incheon Airport Shawn will pick them at them at the airport with a car rented.  WESTIN CHOSUN HOTEL 87 Sokong-Dong, Seoul 100-070 Phone: 82-2-771-0500 / Fax: 82-2-752-1443
<b>Nov. 6 (Tue.)</b>	
<b>9:00 AM</b>	Korea Rep. Office of Oregon State Jin Won, Kim /Director
<b>10:00 AM</b>	Agricultural Trade Office, US Embassy Michael Fay/ Director, ATO Ms. Kim / APHIS Seoul Seung-Ah, Chung / Specialist, Ag. Affairs Office Other Key staffs
<b>2:00 PM</b>	Sooil Trading Joon Hong, Choi / Director Tel. 82-2-409-8967
<b>4:00 PM</b>	Lee's Marketing Inc. Young-Jin, Lee / President Tel. 82-2-430-3959
<b>5:30 PM</b>	Back to Hotel

<b>Nov. 7 (Wed.)</b>	<b>Plan A for ODA Team</b>
<b>8:30 AM</b>	Leave for Korea Food & Drug Administration(KFDA) : Almost 2hours by car rented
<b>10:30 AM</b>	Korea Food & Drug Administration(KFDA) Yim-Shik, Lee / Director, Laboratory Audit & Policy Div.
<b>Noon</b>	Lunch on the way
<b>3:00 PM</b>	Lotte Mart Hee-Seok, Park / Manager Tel. 82-2-2145-8754
<b>Nov. 7 (Wed.)</b>	<b>Plan B for Blueberry Packers</b>
<b>10:00 AM</b>	Home Plus Yang-Shik, Kim / G. Manager Yoo-Mi, Ha / Ass't Manager(Buyer) Tel. 82-2-3459-8982
<b>3:00 PM</b>	Lotte Mart Hee-Seok, Park / Manager Tel. 82-2-2145-8754
<b>Nov. 8 (Thurs.)</b>	
<b>10:00 AM</b>	Shinsegae Food Don-Hyung, Lee / Managing Director Bo-Hyun, Jeong / Team Leader Seung-Chul, Kim / Manager Tel. 82-2-3397-6288, Cell. 82-10-9365-5105
<b>2:00 PM</b>	Visit Food Week 2012 at COEX, Seoul
<b>Nov. 9 (Fri.)</b>	
<b>10:00 AM</b>	Jinwon Trading Chang-Hwa, Oh / President Choong-Hwa, Oh / Director Sang-Chul, Seo / Manager Tel. 82-2-2640-6614

<b>Luncheon</b>	Hosted by Jinwon Trading
<b>2:00 PM</b>	HF Foods Hee-Sang, Choi / President Bandy, Kim / G. Manager Tel. 82-2-702-1367
<b>4:00 PM</b>	Karak Agrucultural & Fishery Market Tour
<b>Nov. 10 (Sat.)</b>	
<b>5:00 AM</b>	Noryangjin Fish Market Tour
<b>10:00 AM ~ 3:00 PM</b>	Retail Tours – Costco, Lotte Mart
<b>Nov. 11<sup>th</sup>(Sun.)</b>	
<b>2:00 PM</b>	Departure to airport



**SATURDAY, JULY 14:**

Dr. Keum Hee Lee arrives in Portland  
4:36p on flight UA 5305  
Transported to Salem by Bryan Ostlund  
Bryan Ostlund's Cell Number 503.510.4242

**Hotel:** The Grand Hotel  
Salem, Oregon

**SUNDAY, JULY 15:**

No Scheduled Events

**MONDAY, JULY 16:**

10:00a Program Entry Meeting, USDA/ODA, The Grand Hotel

Lunch

1:00p Leave Hotel

1:30p Pan-American Berry Packing Facility Audit  
6826 55th Ave. NE, Salem, OR 97305, 503.390.5612

Production Field Audits (as time allows) - *Steve Erickson*

- Pan-American Berry Growers, LLC
- American Oak, LLC
- Five Oaks, LLC

Return to Hotel

**TUESDAY, JULY 17:**

8:00a Leave Hotel

9:00a Oregon Berry Packing Facility Audit  
6000 Southwest Minter Bridge Road, Hillsboro, OR 97123, 503.640.2313

Production Field Audits (as time allows) - *Jeff Malensky*

- Oregon Berry Packing
- Forest Hills Farm
- Mark Unger

Lunch

1:00p Leave for Packing Facility Audit

1:45p HBF Packing Facility Audit  
23301 SW McKibben Rd., Sheridan, OR 97378, 503.843.3185

Production Field Audits (as time allows) - *Derek Peacock*

- HBF
- David Brandt
- Wallace Farms

Return to Hotel

- continued -



**WEDNESDAY, JULY 18:**

7:00a Leave Hotel for Norris Farms – All Day Events

10:00a Norris Farms Packing Facility and Field Production Audits  
8181 Oak Hill Road, Roseburg, OR, 97470, 541.459.4796

Return to Hotel

**THURSDAY, JULY 19:**

8:00a Leave Hotel

8:45a Gingerich Farms Packing Facility Audit  
29995 S Elisha Rd, Canby, OR 97013, 503.651.3742

Production Field Audits (as time allows) – *Verne Gingerich*  
• Gingerich Farms Production Site

11:00a Trapping Protocols and Pest Mitigations – *Helmuth Rogg, Oregon Department of Agriculture*

Lunch

1:00p Production Field Audits (as time allows)

Curry and Company Growers – *Patrick Garrison*  
• Blue Line Farms, Inc., Silverton, Oregon  
• Oregon Blueberry Farms and Nursery, Silverton, Oregon  
• Breyman Farms, Independence, Oregon

Return to Hotel

**FRIDAY, JULY 20:**

8:00a Leave Hotel

9:00a Exit Meeting at the USDA-PPQ office in Portland

Free afternoon

Hotel: Portland Airport Hotel (TBD)

**SATURDAY, JULY 21:**

Dr. Keum Hee Lee Leaves for Seoul

9:16a on flight UA 419

**028 Oregon Berry Growers Food Safety Training and Education**

*Attachment 1: Photos*

*Attachment 2: Sample Certificate*



*Oregon Blackberry, Raspberry, Strawberry and Blueberry  
Commissions Certificate of Completion*



*This certificate recognizes that*

*-----  
Successfully completed on May 2, 2012  
California Strawberry Commission ®  
Food Safety Practices Training (3 hours)*

*-----  
Oregon Berry Commissions*

**029 Building Community Support for Oregon Specialty Crop Agriculture Through Oregon County Fairs – an Outreach and Education Project**

*Attachment 1: Photos*



PIECE A - FRONT



PIECE A - BACK







**Multnomah  
County**

Farms & Ranches: 563

Top crops value in sales:  
nursery • greenhouse  
specialty crops

Direct agricultural jobs: 6,794

Indirect & direct  
agricultural jobs: 16,985

\*Source: 2022 Census of Agriculture, 2021  
All other information ©2023 Oregon Department of  
Agriculture, Multnomah County & U.S. Department of Agriculture

The exhibit appealed to all ages of viewers!

