Specialty Crop Block Grant

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Final Performance Report

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Project A: Western Cherry Fruit Fly Control

Project Summary:

The Flathead sweet cherry industry is nearly 100 years old and has overcome many threats to survive through those years. The Flathead sweet cherry product is very well known by the public and greatly contributes to the local culture and sense of place. A substantial threat to this long-standing industry has been in the form of market loss and uncertainty that was the result of poor organization of the growers and complacency in control of the cherry fruit fly. Fruit fly infestation reached a severe level prior to implementation of this program and as a result markets for Flathead sweet cherries were threatened by the zero tolerance policy practiced by many states and countries that import cherries. An eight million dollar industry that had enjoyed tremendous local support and had established a very notable legacy was at risk of imploding for lack of an organized program to control the fruit fly.

The Flathead and Lake Counties Cherry Fruit Fly Advisory Board was established by the action of county commissioners in 2005 to comprehensively address the problem. Its purpose is to ensure the viability of the sweet cherry industry in Lake and Flathead counties by facilitating the effective control of the western cherry fruit fly pest and preserving the markets for this specialty crop.

The program enjoyed substantial success in its first three years but has struggled from insufficient funding and chronic sources of fruit fly infestation. As a result the program had been unable to become established and achieve the objectives necessary to bring this problem under control and to adequately demonstrate to the growers that a viable program was in place. The Specialty Crop Grant funding which began in 2008 enabled us to sustain the program during a period of low funding, and to maintain our efforts to build a credible program. We were able to intensify our efforts during 2008 and 2009 and to address two specific problem locations within the Pest Management Area.

The importance of this project is that it permitted the continuation of the newly formed Pest Management Area so that it could not only achieve its goals, but avoid lapsing into inactivity during a critical period of low funding. The timeliness of this funding is that it came early in the development of the PMA and during a critical period when survival and continuity of the program was at risk. The Specialty Crop grant funding served to bridge this critical period and ensures the continued viability of this important program.

This project was not previously funded by Specialty Grant monies, but rather by the check-off assessment of the growers.

Project Approach:

We continued in our effort during 2008 and 2009 to identify 100 percent of the sources of the western cherry fruit fly in the Pest Management Area (PMA). This is an ongoing task because of the dynamic nature of infestations and the continual arrival of new growers

into the PMA. We identified several new reports of problems in 2008 and 2009 and addressed a backlog of about five locations that we were not able to resolve in 2007.

We focused our evaluation of control problems on two specific locations during the grant period that have proven to be very difficult to resolve. A single grower at the south end of the PMA who has been a chronic source of infestation was served with an enforcement letter requiring that he conduct a control program to the satisfaction of the Board. The grower complied with the demands of the Board and conducted a complete and acceptable control program in 2008. During 2009 we trapped his trees and found no fruit flies, confirming complete success of this effort. We were able to identify several similar and additional problems with growers in this particular area during 2009, and will address them in 2010.

The second focus area in 2008 and 2009 was a set of eight growers in Wood's Bay that have had chronic problems with fruit fly infestation. We trapped each location and discussed control measures with each grower. The trapping results indicated substantial progress with only very few sites exceeding the standard for the allowable number of fruit flies per trap. This important area is now considered largely under control, but will require additional monitoring in the future to verify these conclusions.

Our field representative continued to contact growers throughout the PMA providing verbal and written information on the importance of control of the western cherry fruit fly. In addition our representative attended the Cherry Festival in Polson in July and made numerous contacts with the public there.

As of the end of 2009 we have engaged all known owners of cherry trees in the PMA. We assume that many owners have escaped our notice, especially back-yard growers, and will continue to seek them out.

We conducted an active program during 2008 and 2009 to identify alternate hosts of the western cherry fruit fly, and to identify additional species within the *Rhagoletis* genus that may present some confusion in identification. We identified four other species of *Rhagoletis* (*basiola, tabellaria, bergeris,* and *zephria*) and developed keys to aid in their identification and separation from the western cherry fruit fly. We also identified wild and domestic fruit that grows in the PMA and that supports the western cherry fruit fly (*Rhagoletis indifferens).* The most concerning wild host is bitter cherry (*Prunus emarginata*) and we developed a key to help growers identify this plant because it could be a problem for them if located near their orchards. Our methods to obtain this information included the collection of fruit during the growing season and holding it through winter in special containers until the larvae hatched and holding them until they metamorphosed into adults the following summer. This method is especially helpful because the most reliable method of identifying species is to examine them in the adult stage. Through these efforts we also identified 27 fruit-bearing plant species that grow in the PMA that were considered to be potential reservoirs, but we determined that they did not support the western cherry fruit fly.

During 2008 and 2009 we killed a total of 168 feral cherry trees in the PMA, in both highway right-of-way locations and in private yards. We also placed fruit fly traps in 70 orchards and contacted a total of 115 growers.

Significant accomplishments during the grant period were 1) to sustain the program during a critical period so that there was no loss on continuity in the program, 2) to improve the credibility and acceptance of the program among growers, 3) to substantially reduce the overall occurrence of the western cherry fruit fly within the PMA, and 4) to further our knowledge of the wild reservoirs of the western cherry fruit fly.

This grant partnered with the grower-based funding that is the primary source of support for the PMA.

Goals and Outcomes Achieved

The goals of this project are to engage all growers within an identified pest control management area and to implement regulations, conduct an education campaign, monitor infestation levels, and investigate and control feral hosts of the fruit fly. Our specific goals are to:

1) Identify 100 percent of sources of Western Cherry Fruit Fly in the Pest Management Area (PMA).
    - We achieved this goal to the extent practical, given that new sources of fruit fly are always developing.
2) Evaluate and inventory the control problems of all cherry growers in the PMA.
    - We achieved this goal with the exception of one grower that refused to participate or even speak with us. We will follow up in the future on this case and possible new ones during the on-going pest-management program and under the funding assessed to the growers.
3) Educate the general public and numerous cherry growers about the importance of control of the western cherry fruit fly.
    - We achieved this goal in the form of grower contacts and participation in the Flathead cherry festival in Polson.
4) Engage 100 percent of cherry tree owners in the PMA who do not have an acceptable program as mandated by Lake and Flathead counties.
    - We achieved this goal with the exception again of one grower that refused to participate or even speak with us. We will follow up in the future on this case and possible new ones during the on-going pest-management program and under the funding assessed to the growers.
5) Conduct research to answer new as well as lingering uncertainties about the control of the fruit fly and to maintain the program's effectiveness over time in a changing environment.
    - We achieved this goal through research into alternate hosts of the western cherry fruit fly.

- Long term goals
    - The funding received from the Specialty Crop grant allowed us to move substantially closer to a healthy condition within the PMA such that the incidence of the fruit fly has been reduced to very low levels and that we have moved from a crisis state to a healthy and sustainable program.

- Actual versus planned goals
    - We largely achieved all the goals we set out to achieve in this program.

- Baseline relative to targets
    - The baseline condition at the start of the PMA consisted of a disorganized collection of growers in which many individuals took control of the western cherry fruit fly on their properties, while many took no control and had no knowledge of the problem. This situation is almost totally changed such that now there is a cohesive and effective program that addresses all the sources of western cherry fruit fly within the PMA.

Beneficiaries:
All growers within the PMA are benefiting from this program. Secondarily, the economic stimulus brought by this industry is no longer threatened by the failure of a viable program to control the fruit fly. There have been no markets closed to Flathead cherries since the PMA was instituted.

Lessons Learned:
We learned that the goals of the PMA are achievable and that with adequate effort and continued vigilance it is possible to control the western cherry fruit fly within the PMA. To get to this point we learned that the public is quite capable of conforming to the mandates of the PMA and that they understand the risk that the fruit fly represents to not only the individual growers but to the entire industry.

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Project B: Colony Collapse Disorder, Apiary Virus Detection for Honeybees

Project Summary:

This project was initiated by the Colony Collapse Disorder (CCD) affecting honey bees throughout Montana and the nation and has created an opportunity to demonstrate a new technology for honey bee health management and pathogen screening. This inexpensive and rapid method, called the Integrated Virus Detection System (IVDS) was developed by the U.S.

The Army's Edgewood Chemical and Biological Center. Since February 2008, the Army has extended IVDS capability to screening for bee viruses that may cause CCD. CCD has severely affected Montana beekeepers. We proposed to provide this new method for quickly and inexpensively screen for and detecting the presence of pathogens/viruses in bee colonies to Montana's commercial beekeepers. Although viruses can have devastating effects on bee colony health, beekeepers have not had an affordable nor rapid means of screening their colonies for these disease agents. The ability to screen for and a report on the status and levels of pathogens/viruses in each bee colony could revolutionize colony health management. Knowing what pathogens are in colonies allows appropriate mitigation efforts may be implemented. These may include isolation controls, sterilization of infected colonies, inoculations, or other measures.

Montana has national importance with its large scale migratory beekeeping operations and the crop pollination services provided throughout the western regional. This state is an excellent place to test and demonstrate a new technology for colony health management.

The technology and methods introduced and demonstrated through this project are clearly of interest to the bee industry and all of the crops that benefit or depend on honey bee pollination.

These methods and this technology hold the potential to substantially reduce the operating losses for all keepers in this multi-billion dollar activity (billions nationally for pollination in terms of increased crop value, millions to Montana's beekeepers and growers.), and reduced costs, plus healthier bees, will increase the competitiveness of Montana's keepers.

The technology being introduced by BVS, Inc. to the Montana beekeepers was invented in the Army labs at Edgewood, MD. BVS is commercializing this disease detection capability via a technology transfer agreement with the Army. The need for screening services is critical, due to a national CCD crisis. The USDA ARS Action Plan for CCD investigations recognizes the importance of IVDS as a critical diagnostic tool. Since IVDS technology is limited in availability, with less than a dozen instruments in existence, BVS, Inc. is in position to deliver to Montana this new productivity tool. BVS will provide pathogen screening to beekeepers, along with individual technical reports that can help each beekeeper better manage their colonies to reduce disease incidents and bee losses. BVS will demonstrate and promote this technology via field sampling, direct

reporting to beekeepers, and meeting with beekeepers in their apiaries, as well as the Montana, regional, and national beekeeping association meetings.

Project Approach:
During this two year project we collected samples from Montana beekeepers and analyzed these samples and converted the data into report format that was provided to the beekeeper. This project was added to the materials that were presented to the Montana, regional and National Associations meetings and conferences during 2008 – 2010 where I was an invited speaker at these meetings.

Many of the Montana beekeepers provide pollination service out of state during the year and are called migratory beekeepers. This has led to introductions to migratory beekeepers from many different areas of the country and to opportunities to expand our service to many others and into other areas of viral research such as bark beetle control efforts with the USDA and work with the University of Montana Native American Research Laboratory and their work on thermophiles.

During the first year we established a Montana based laboratory based on Army Technology, that was licensed with the aid and support from MilTech based at Montana State University in Bozeman. A cooperative research agreement (CRADA) with the army was secured and implemented for further support and use of the technology.

The collection of samples was continually modified with a standard that was simplified and implemented in the second year that is now our model for use. In the first year we processed nearly 700 samples with reports being delivered to 20 different beekeepers. Modifications of the support equipment increased throughput for 6 samples per day to our current 18 samples per day. In the second year we processed over 1100 samples.

Reports to the beekeepers were formatted to deliver the data that can be easily interpreted by the beekeeper for their use and application in their bee management practices. This was accomplished by discussions with the beekeepers and our team to what the beekeepers needed in order to make their management decisions.

The significant results achieved as a team includes the discovery for treatment of viral infections in bees (current research project partially funded by Project Apis m) and the use of our monitoring over time to evaluate the health of a bee population. The first year results showed the methods of reports in the form of bar charts and notation of the viral loads carried in the bees sampled. The second year we modified the reports to reflect the greater detail of a line chart that we could overlay the sequential data for the year. A related project funded in part by the Almond Board of California for the identification of the detected virus size from our technology to the virus name. We are now able; with this confirmation identify 6 different viruses.

Regarding the identification of the peaks, BVS, Inc. developed the translation of Integrated Virus Detection System (IVDS) peak detections that are based on the virus size to a correlation with data outputs from PCR, Virochip and MS/Proteomics to

establish virus names to specific peaks in IVDS data. While the IVDS technology is rapid in detection there is no reliable comparison of size to actual associated names of the viruses. All the existing work is generalized to a range of sizes for each virus. The nature of the IVDS instrument brings a very precise sizing for each virus by the virus' inherent physical properties and the mass charge ratios of IVDS. By working with Bee Alert, The University of San Francisco (DeRisi Lab), Edgewood Chemical and Biological Center (ECBC), and the USDA ARS lab, BVS collaborated with the beekeeping industry and with key researchers to provide a translation of the IVDS data to a common terminology that is understood by all.

BVS has been successful in the assignment of six names to six peaks in the IVDS data. The duplicate and follow on portions of the objectives has not yet been accomplished. Data is still outstanding, but is in progress, it is our hope to have this data for the October meeting and presentations.

What we have accomplished is significant and has provided groundwork for comparative data from differing technologies.

The combination of technologies has provided a means to establish names on the IVDS Peaks. The viruses that we found and associated with peaks are DWV, KBV, ABPV, BQCV, IAPV, and SBV.

The interpretation of this data has led to a new technology scoring system that should be able to be automated for use with IVDS and to be used on comparative values of virus titers in the same sample and putting IVDS as an analytical/front end tool for PCR and MS/Proteomics.

The data derived from the three sources has given IVDS a basis to name calling at peak detections.

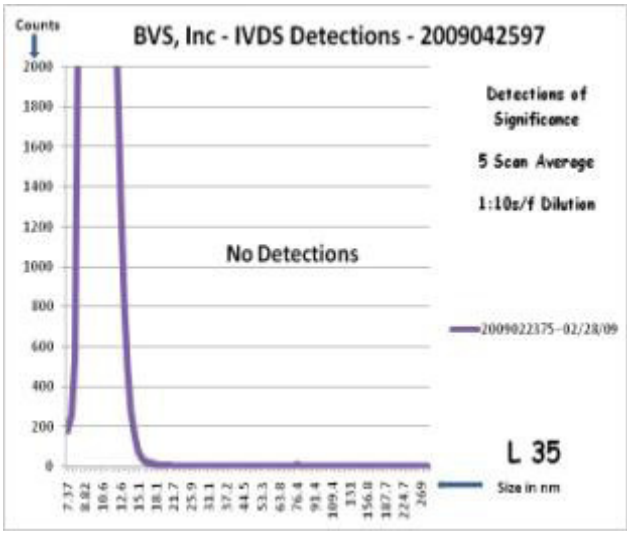
. DWV at 21.7 nm
. KBV at 22.5 nm
. ABPV at 28.9 nm
. IAPV at 25.9 nm
. BQCV at 33.4 nm
. SBV at 32.2 nm

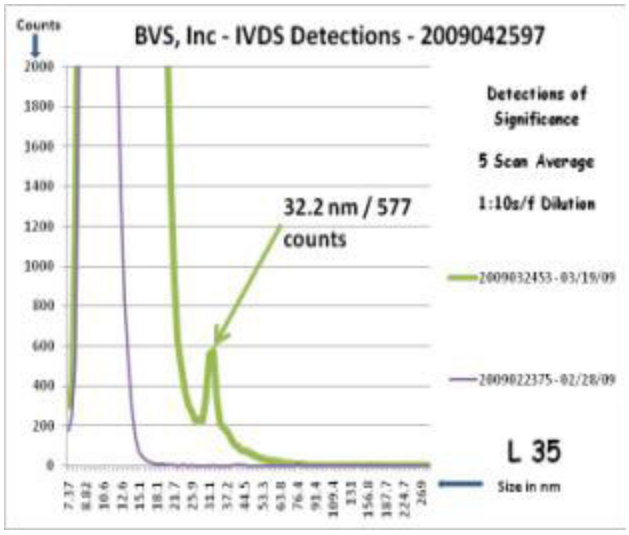
Regarding the data from the time sequence BVS has observational data that suggests essential oils are effective in the reduction of viral loads. The data in table 1 shows that bee colonies with an increasing viral loads response favorably when treated with some combination of essential oils. The viral load drops and stays low for approximately sixty days. The weakness of this data is the lack of experimental methods and controls that provide reliable proof and details of application of that can then be repeated by the beekeeper with confidence in the outcome of treatments.

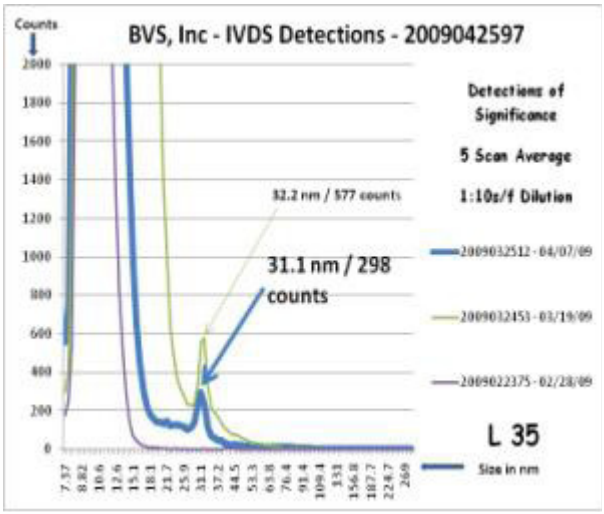
Many of the viruses detected in bees do not show active infection as seen by some symptomatic evidence as noted by the work of L. Bailey but do show up in the IVDS screening and is used as a measurement of how well the bees are fighting infection. The bee viruses are opportunistic in nature and will increase in the bees as the bee health declines for any of various reasons. The use of Essential Oils is a known treatment in bees for many issues but has not been established quantitatively for virus loads.

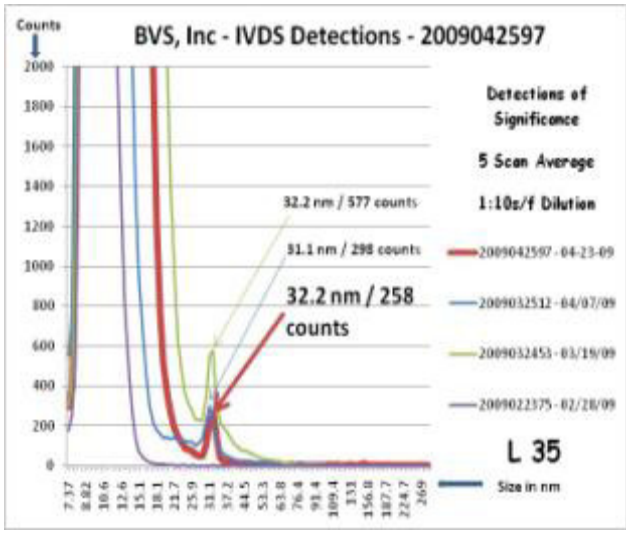
The following Data (Table 1) is from a single colony but is representative of over 20 colonies monitored by BVS, Inc., all with similar results and only had essential oils as a treatment. Nutritional supplements were provided to all colonies.

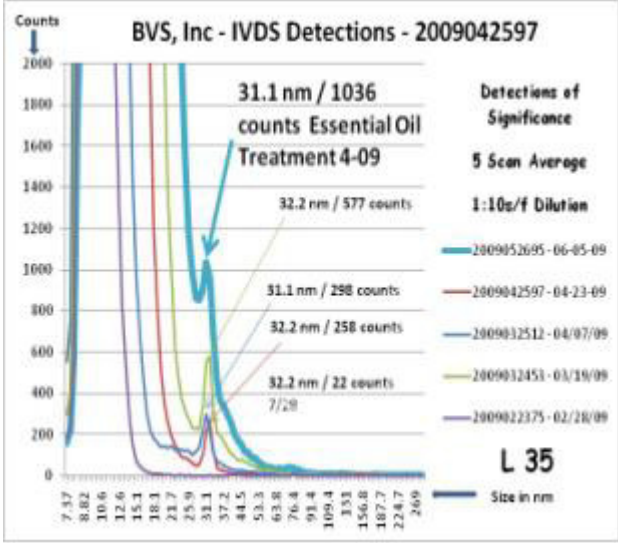
Table 1

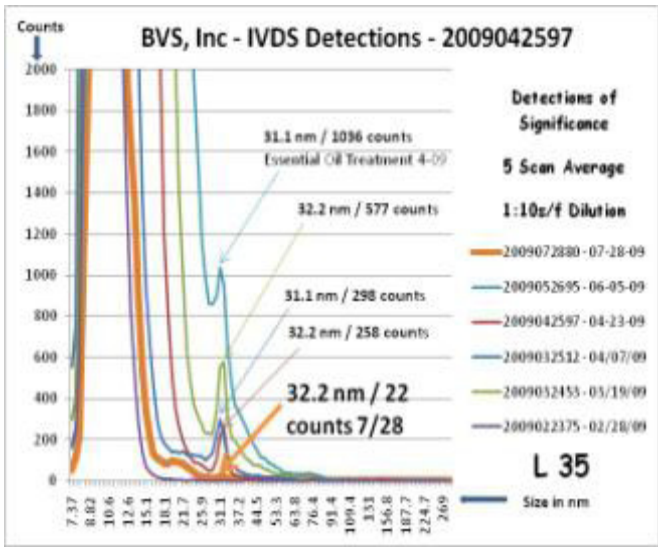


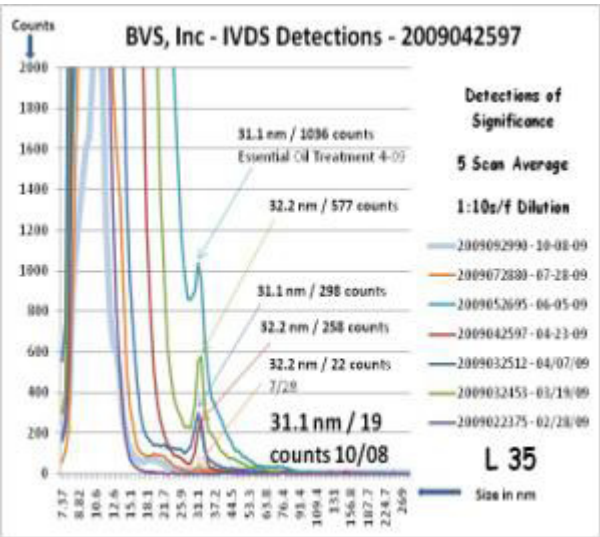












This method of screening bee colonies for health management practices is being implemented nationwide this year, slowly but with steady growth.

Goals and Outcomes Achieved:

As shown in the previous section BVS has brought an innovative technology to Montana beekeepers in the form a new tool for bee health management and has been a value added service to a Montana beekeeper who has bees in excellent health during the Almond Pollination season in California during another round of CCD and beekeeper losses. This has given him the opportunity to be in high demand when others are unable to meet their pollination contracts to supply bees.

For this project we completed our goals of:

1) Providing a new tool;

2) Providing samples at no costs to the beekeepers;
3) Presentations to beekeeper conventions and meeting;
4) Publications in beekeeper newsletters, journals and magazines;
5) Improved the quality of beekeeper management by using this service;
6) Reduced beekeeper losses by using this service;
7) Improved BVS laboratory throughput;
8) Created a functional web-site for beekeeper interaction.

Beneficiaries:
The beneficiaries are the beekeepers of Montana and the nation. The follow-on projects are the USDA, The University of Montana, Montana State University, Crop growers that use bees as pollinators.

This project has led to additional funding of over $200,000 to bee research in Montana from out of state parties. This also has brought together researchers from other disciplines that are following our methods in their fields as well as using BVS, Inc to process samples for their projects, including bark beetles, animal and plant protection, and White Bark Pine research to name a few and all leading into new products, methods and research opportunities here in Montana.

Lessons Learned:
There is always more work to do than there is time to do it in. The laboratory setup was more complicated than anticipated and the licensing was more difficult to secure than expected.

Throughput was not as projected. These problems were all overcome by time invested, and patience. The support personnel are a key component to the success of this project. The need for perseverance in the light of a difficult problem and the use of project mentors is invaluable. I will look to any new challenge and project with these elements being a key to its success.

The most unexpected result we have had from this project is the discovery of the positive effect of essential oils on bee health and the discovery of this by the sequential bee sample monitoring method used. This has lead to further research funding and opportunities.

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Project C: Organic Project

The organic project supported by this Specialty Crop Block Grant (SCBG) included four separate initiatives:

1. Facilitation of international marketing of specialty crops;
2. Provision of certification cost share assistance;
3. Development of enhanced forms for organic certification of specialty crop producers; and
4. Training of program staff to better understand and serve specialty crop growers.

Project Summary

The overall purpose of the department's specialty crop projects is to enhance the value and diversity of Montana agriculture by increasing the production and marketability of specialty crops in Montana. The organic projects served these same purposes.

Organic certification provides enhanced marketing opportunities to specialty crop growers. Unfortunately, some of the highest value markets for organic specialty crops require additional international certifications. SCBG funds were used to support the department's accreditation under the International Standards Organization (ISO) Guide 65 program. This accreditation, in turn, allowed the department to offer certification to international organic standards. International certification provided additional high-value marketing opportunities to specialty crop growers.

The cost of organic certification can be a significant barrier to growers. While the USDA has a program to provide cost share assistance for organic certification, the program was significantly under-funded prior to implementation of the 2008 Farm Bill. Montana exhausted its cost share funds in 2006. No additional funds were available in 2007. The lack of cost share funds was felt especially by small-scale organic producers and by potential new applicants for organic certification. Paradoxically, these are among the growers most likely to produce specialty crops. Thus, one way to support additional specialty crop production and marketing opportunities for specialty crop growers was to provide cost share for their organic certification costs. We used SCBG funds to provide cost share to certified organic specialty crop growers in 2008.

The department used a single form for all types of crop producers applying for organic certification. While this Organic System Plan (OSP) form worked reasonably well for many growers and fairly well for most, it did not work very well for most specialty crop growers. Specialty crop growers, both new applicants and long-time organic growers, repeatedly complained that our OSP form did not work as a tool to describe their diverse operations. Having seen and heard this problem, the department utilized SCBG funds to launch an effort to develop better forms for certification of specialty crop growers. Having better forms will encourage more organic growers to add specialty crops to their operations and will facilitate new organic growers in applying for certification.

Much like our forms, the knowledge and experience of program staff was tilted toward more traditional agriculture and more common crops. To address this problem, SCBG funds were used to support training for program staff to better understand specialty crop

production and certification. This training has allowed us to better serve the needs of specialty crop growers.

Organic specialty crop growers fall largely into two categories. One category are small scale fruit and vegetable producers who market their products locally through farmer's markets, direct sales and Community Supported Agriculture (CSA) arrangements. The other are larger-scale grain growers who grow pulse crops as a means of diversifying their crop rotations, providing fertility and enhancing weed, pest and disease management. Montana needs more growers in each category.

There is a significant un-met demand for locally-grown organic food. Existing organic fruit and vegetable growers report that they "turn customers away," due to inadequate production. Farmers markets are in place in most of Montana's towns and see great interest from consumers. Even given the economic recession, many consumers see buying locally-grown organic foods, shopping at farmers markets and preparing more food at home as methods to save money and eat healthier- having their vegetables and eating them too!

Montana has long been a leader in organic grain production. Our state's organic producers consistently seed and harvest more acres of organic wheat than any other. Unfortunately, the long term sustainability of many farms is imperiled by inadequate crop diversity. Traditionally, Montana farmers have grown wheat in alternate years with fallow in order to preserve soil moisture. In years with more moisture, they grow more wheat; in drier years more land is fallowed. Organic growers have too often used this same farming practice. Statistics published by the USDA (Economic Research Service) consistently indicate that Montana has more than four acres of organic wheat for every acre of all other crops combined. One may wonder how all of that wheat qualifies for certification. Perhaps more importantly, wheat monoculture systems are definitely not sustainable under organic management. More crop diversity is necessary to maintain soil fertility and organic matter, manage weeds, pests and disease, and to prevent soil erosion. Pulse crops, such as dry peas, lentils and vetches are among the best alternative crops to add needed diversity to organic rotations. These specialty crops may be harvested for seed, used as forage, or incorporated into the soil as "green manure." The later practice is especially beneficial to improving soil fertility and organic matter, while still preserving soil moisture. If Montana is to continue to be a leader in organic crop production, it will have to increase the acreage devoted to specialty (pulse) crops.

Project Approach

The first initiative of the organic project was to facilitate marketing of specialty crops. This was to be done by providing organic certification to specialty crop growers and by offering additional, international certifications. Organic certification is a marketing tool, which allows growers to sell, label and represent their crops as "organic." Often there are substantial premiums for organic crops, relative to prices paid for non-organic version of the same commodity. Certification to additional standards may "open the door" to even greater value-added international markets.

Organic is the fastest growing segment of Montana agriculture. As a result, the demand for certification services is also rapidly growing. Keeping up with this demand for service is a challenge. The department has utilized contracted certification specialists to review applications and recommend certification decisions. These highly qualified professionals have allowed us to provide more timely service than would have been possible with our limited staff. Also, since many of the new applicants were specialty crop growers, we contracted reviewers with expertise in specialty crop production and certification. Supporting a portion of the work done by our contract reviewers with SCBG funds has enabled the department to certify more organic specialty crop growers. We have learned that using contractors is a relatively quick and efficient method of growing and enhancing the expertise of a certification program.

The department organized an Organic Grower Awareness Campaign (OGAC) in 2008. The purpose was to publicize and promote the opportunities available in the organic market and to encourage crop producers to consider organic production. The Organic Program utilized SCBG funds to support our involvement in the OGAC. Program staff presented information at a series of meetings across the state. Our presentations explained the certification process, fees and organic production standards. A key part of the message was that implementation of diverse crop rotations is necessary to attain or maintain organic certification. By educating interested growers that crop diversity is both necessary and beneficial, we promoted increased production of specialty crops.

Providing certification to additional organic standards provided our growers with access to high-value international markets for organic crops and products. In order to provide these certifications, the department has to maintain accreditation under the International Standards Organization (ISO) Guide 65 program. This accreditation requires multiple annual audits. SCBG funds were used to fund the costs of maintaining the ISO accreditation.

While ISO accreditation is necessary to offer certification to international standards, it is no longer sufficient. In 2008, new regulations in the European Union (EU) required that certifying agents be directly accredited by the EU commission. The department was able to negotiate a cooperative agreement with the Washington State Department of Agriculture (WSDA) to provide our organic growers with international certifications. Under this agreement, the department acts as an inspection body for the WSDA. We conduct the on-site inspections, provide reports to the WSDA and they issue the international certifications. This agreement allowed us to continue providing international certifications without incurring the additional costs of EU accreditation. Working as an inspection body for the WSDA required additional training of our inspectors. The department used SCBG funds to support the training of two staff members to perform International Organic inspections for the WSDA.

In 2008, the department provided cost share payments to 43 growers of certified organic specialty crops. The funds provided reimbursement for 96% of the growers' costs for certification. Eligibility was limited to growers of organic specialty crops whose gross annual income from crop sales, as reported on annual sales report to the department, was

less than $100,000. By targeting the cost share to smaller operations, we provided assistance to those for whom the cost of certification is a significant barrier.

The USDA made funds available for the National Organic Certification Cost Share program in 2009. Once these funds were available, the department amended our SCBG application to re-direct funds from the cost share initiative to other aspects of the project. By re-directing the funds, we avoided use of SCBG funds for a purpose that was provided for by another USDA program. It also allowed us to support additional staff training, which is described below.

The department contracted with the National Center for Appropriate Technology (NCAT) to develop Organic System Plan (OSP) forms that better accommodate the needs of specialty crop growers. The new forms are shorter, have more pertinent questions and have fewer questions that are "not applicable" to operators. Rather than the "one-size-fits-all" form we had used, we now have specific OSP forms for Field Crops, Diverse Crops, Tree and Perennial Crop, Hay and Pasture and Mushrooms. Additional addendums are available for producers with greenhouses, those who use compost or manure, who do post-harvest handling and who gather wild-crops. The forms were developed in 2009 and provided to growers for use in 2010. While we are confident that the specialization of forms will be an improvement for applicants, the benefits will not be evident until we have completed the 2010 certification season.

SCBG funds were used to support a number of training opportunities for certification program staff in 2008 and 2009. Bureau Chief, Andy Gray, and Agricultural Specialist, Sean Mulla completed organic inspection training, which focused on certification and inspection of fruit and vegetable operations. Program Manager, Doug Crabtree, and Sean Mulla, attended the 2009 Eco-Farm conference in Salinas, CA. At Eco-Farm, they were trained on organic fruit and vegetable production practices. Finally, the entire staff attended field tours and the annual conference of the Montana Organic Association (MOA). At the MOA events, staff became better acquainted with organic producers and production practices here in Montana.

Goals and Outcomes Achieved

In 2007, the department certified 88 organic crop producers, including 45 growers of specialty crops. By the end of 2009, we had certified 105 crop producers and 64 specialty crop growers. This represents a 19% increase in the number of organic crop producers and a 42% increase in specialty crop growers. The percentage of organic growers producing specialty crops increased from 51% to 61%. We continue to see tremendous opportunity for specialty crop growers in the organic market and significant opportunities for organic growers to add specialty crops to their operations.

1) The number one goal of this project was to increase the number of organic specialty crop growers in Montana. We projected a 20% annual growth and a total of 63 certified growers by the end of 2009. We exceeded this goal by certifying 64 specialty crop growers.

2) The second goal was to increase the number and value of markets for specialty crop growers. Our success in this area was (is) much more difficult to quantify. As previously articulated, organic specialty crop growers in Montana are of two primary types- intensive producers of fruit and vegetable crops for local markets and extensive producers of pulse crops. Each group presents unique challenges in quantifying their market value.

   For the intensive producers, the markets are direct sales, farmers markets and CSA's. While these growers use organic certification as a marketing tool, they do not receive a measurable premium for organic crops, per se. We have interviewed several of the growers and found that they feel certification may increase the number of customers who seek out their products, more so than the prices they charge. There is no practical means of measuring the added value of certification for these growers.

   For the extensive growers, pulse (specialty) crops are grown for three distinct purposes, in this order of importance and volume: as green manures, as seed for subsequent use on the farm or by neighboring producers, and lastly as food or feed crops. Each year far more peas, lentils and vetches are incorporated into the soil that is actually harvested. While there is a definite value of the green manure crops, it can only be quantified indirectly. The value is in the enhanced production (yield) and value of subsequent crops. Similarly, crops grown for seed are not reported as income and are thus difficult to value. Even crops "sold" to others as seed are often provide in barter or other non-cash transactions, which do not show up on the sales report. The value of organic specialty crops that are indicated on sales reports is a miniscule fraction of the true value of the crops.

Overall, we believe that the project has been successful. That success is most readily measured by the 42% increase in the number of specialty crop growers. The increase in growers also may be assumed to have increased the production acreage of specialty crops. Providing certification and international certification options to specialty crop growers has undoubtedly increased the number and value of markets for specialty crops, though this outcome is difficult to quantify.

Beneficiaries

A number of groups have benefited from this project. Among them are the (existing) organic growers, who have access to additional international markets for their products. Also, the new certified organic growers who now have value-added markets for their crops, due to certification. Both groups benefited from cost share assistance provided and from the improved forms, which will improve the certification process. Finally, our program staff and those growers that we serve have benefitted significantly from the training.

Lessons Learned (the best laid plans…)

The largest portion of the organic specialty crop project was originally allocated to provide cost share assistance to specialty crop growers to reimburse their costs for organic certification. In CY 2008, $37,500 (of the $50,000 project budget) was used to

provide organic certification cost share. However, in 2009, the department received funding from the USDA's National Organic Certification Cost Share program to provide certification cost share to all certified organic producers and handlers in Montana. Having another funding source dedicated to this purpose, it seemed inappropriate to use the Specialty Crop grant funds for certification cost share.

Once the decision was made to reallocate the funds budgeted for certification cost share to other purposes, every effort was made to find other means to utilize the Specialty Crop grant funds. Unfortunately, $9,507.18 (of the $50,000 budget) was not spent in 2009. Given that we were nearly halfway through the project / grant period when the cost share funds were reallocated, it is fortunate that we were able to utilize nearly 75% of the funds to other project purposes.

Contact Person

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Project D: National Agricultural Statistics Service

Project Summary

The Montana Field Office (MTFO) of the National Agricultural Statistics Service agreed with the Montana Department of Agriculture to provide county level estimates for a variety of specialty crops. These crops are generally small acreage crops with little or no historical information being known about them. Providing the detailed county estimates would help the Montana Department of Agriculture in marketing efforts having to do with these crops by knowing where they are located and in what quantities.

The specific crops of interest are dry edible peas, lentils, Austrian winter peas, and dry edible beans which includes pinto beans and both large and small chickpeas. The MT FO selected a sample of the growers of these crops and then contacted them, mostly by telephone but also by personal visit, to ask for acreage and production information for these specialty crops. The county estimates are to be published by April 30 annually.

Project Approach

In the summer of 2008 the MT FO updated the questionnaire to make sure it included all the specialty crops of interest. Data collection started in October and continued through January. Over 700 producers were contacted to obtain their acreage and production data. Phone enumerators were trained in October prior to the start of data collection to effectively collect the data from the growers. Review and summarization of the collected data started in January and continued into April. Finally, county estimates were prepared for publication by the end of April.

Goals and Outcomes Achieved

The ultimate goal is to publish statistically defensible county level estimates for the specialty crops. All the activities mentioned above were critical in achieving that goal. The 700 plus producers that participated in this survey were only a relatively small part of the overall survey. We did not track the specialty crop producers separate from the rest of the survey, so we do not have a response rate just for them. However, the response rate for the overall survey was about 70%. This is a similar response rate we have achieved in past years. The county level estimates were published on time as they have been in past years.

ALL DRY BEANS
Acreage, Yield, and Production By Counties and Districts, Montana, USA, 2008

Last updated June 30, 2009

County and District	2008			
	Planted	Harvested	Yield	Production
	Acres	Acres	Pounds	Cwt
Dawson	1,300	1,300	1,920	25,000
Sheridan	1,300	1,300	1,290	16,800
Other	2,100	2,100	1,100	23,200
NORTHEAST	**4,700**	**4,700**	**1,380**	**65,000**

Custer	600	600	2,580	15,500
Prairie	2,400	1,000	2,600	26,000
Rosebud	500	500	3,400	17,000
SOUTHEAST	**3,500**	**2,100**	**2,790**	**58,500**
OTHER DISTRICTS	**3,000**	**3,000**	**2,250**	**67,500**
MONTANA	**11,200**	**9,800**	**1,950**	**191,000**

PINTO BEANS
Acreage, Yield, and Production By Counties and Districts, Montana, USA, 2008

Last updated June 30, 2009

County And District	2008			
	Planted	Harvested	Yield	Production
	Acres	Acres	Pounds	Cwt
Custer	600	600	2,580	15,500
Prairie	2,400	1,000	2,600	26,000
Rosebud	500	500	3,400	17,000
SOUTHEAST	**3,500**	**2,100**	**2,790**	**58,500**
OTHER DISTRICTS	**5,100**	**5,100**	**2,260**	**115,500**
MONTANA	**8,600**	**7,200**	**2,420**	**174,000**

GARBANZO BEANS
Acreage, Yield, and Production By Counties and Districts, Montana, USA, 2008

Last updated June 30, 2009

County and District	**2008**			
	Planted	Harvested	Yield	Production
	Acres	Acres	Pounds	Cwt
OTHER DISTRICTS	**2,600**	**2,600**	**650**	**17,000**
MONTANA	**2,600**	**2,600**	**650**	**17,000**

DRY PEAS
Acreage, Yield, and Production By Counties and Districts, Montana, USA, 2007

Last updated April 16, 2008

County and District	**2007**			
	Planted	Harvested	Yield	Production
	Acres	Acres	Pounds	Cwt

Flathead	1,500	1,400	2,000	28,000
NORTHWEST	**1,500**	**1,400**	**2,000**	**28,000**
Blaine	1,700	700	1,430	10,000
Chouteau	2,400	2,100	860	18,000
Glacier	5,400	3,200	340	11,000
Hill	1,100	2,300	1,650	38,000
Liberty	3,400	3,400	880	30,000
Phillips	6,300	5,800	1,170	68,000
Pondera	4,200	3,900	1,210	47,000
Teton	4,400	4,400	800	35,000
Toole	2,000	1,900	890	17,000
Other	--	--	--	--
NORTH CENTRAL	**33,200**	**27,700**	**990**	**274,000**
Daniels	48,000	47,800	1,660	795,000
Dawson	3,500	3,400	1,380	47,000
Garfield	2,600	2,600	1,080	28,000
McCone	5,900	5,000	1,860	93,000
Richland	4,800	4,300	2,000	86,000
Roosevelt	28,200	28,000	2,130	595,000
Sheridan	48,500	47,700	1,960	934,000
Valley	44,500	35,700	1,650	590,000
NORTHEAST	**186,000**	**174,500**	**1,820**	**3,168,000**
Cascade	1,200	900	1,110	10,000
Fergus	700	600	1,830	11,000
Judith Basin	3,100	3,100	1,740	54,000
Other	500	500	2,200	11,000
CENTRAL	**5,500**	**5,100**	**1,690**	**86,000**
Gallatin	1,600	1,500	2,470	37,000
SOUTHWEST	**1,600**	**1,500**	**2,470**	**37,000**
Other	1,900	1,500	1,400	21,000
SOUTH CENTRAL	**1,900**	**1,500**	**1,400**	**21,000**
Carter	--	--	--	--
Wibaux	2,800	2,800	1,820	51,000
Other	2,500	2,500	960	24,000
SOUTHEAST	**5,300**	**5,300**	**1,420**	**75,000**
OTHER DISTRICTS	**--**	**--**	**--**	**--**
MONTANA	**235,000**	**217,000**	**1,700**	**3,689,000**

AUSTRIAN WINTER PEAS
Acreage, Yield, and Production By Counties and Districts, Montana, USA, 2007

Last updated April 14, 2009

County and District	2007			
	Planted	Harvested	Yield	Production
	Acres	Acres	Pounds	Cwt
Blaine	--	--	--	--
Chouteau	--	--	--	--
Glacier	--	--	--	--
Other	8,000	2,900	830	24,200
NORTH CENTRAL	**8,000**	**2,900**	**830**	**24,200**
Other	--	--	--	--
NORTHEAST	**--**	**--**	**--**	**--**
Other	700	300	1,730	5,200
CENTRAL	**700**	**300**	**1,730**	**5,200**
Other	--	--	--	--
SOUTH CENTRAL	**--**	**--**	**--**	**--**
OTHER DISTRICTS	**11,300**	**800**	**830**	**6,600**
MONTANA	**20,000**	**4,000**	**900**	**36,000**

-- Counties with no acres planted or counties that are combined into "other" counties/districts to avoid disclosure of individual information.

LENTILS
Acreage, Yield, and Production By Counties and Districts, Montana, USA, 2007

Last updated April 16, 2008

County and District	Planted	Harvested	Yield	Production
	Acres	Acres	Pounds	Cwt
Hill	1,300	1,300	590	7,700
Liberty	1,500	1,500	430	6,400
Other	500	400	480	1,900
NORTH CENTRAL	**3,300**	**3,200**	**500**	**16,000**
Daniels	7,800	7,700	770	59,000
Dawson	2,100	1,800	1,220	22,000
Richland	2,300	2,300	1,090	25,000
Roosevelt	3,700	3,300	1,000	33,000
Sheridan	56,000	55,700	1,070	595,000

Valley	6,000	5,900	850	50,000
Other	1,600	1,500	1,230	18,500
NORTHEAST	**79,500**	**78,200**	**1,030**	**802,500**
Fergus	800	700	570	4,000
Other	500	500	320	1,600
CENTRAL	**1,300**	**1,200**	**470**	**5,600**
Wibaux	--	--	--	--
Other	2,100	1,900	760	14,400
SOUTHEAST	**2,100**	**1,900**	**760**	**14,400**
OTHER DISTRICTS	**800**	**500**	**700**	**3,500**
MONTANA	**87,000**	**85,000**	**990**	**842,000**
-- Counties with no acres planted or counties that are combined into "other" counties/districts to avoid disclosure of individual information.				

Beneficiaries

The main beneficiaries of this project are Montana specialty crop producers, researchers, potential processors and commodity dealers. These statistics are also beneficial for crop insurance issues.

Lessons Learned

As mentioned above many of these specialty crops are small acreage crops. This presents some challenges when preparing small area estimates like counties. The estimates need to be statistically defensible which means they need to be based on a minimum number of responses. Many counties only have one or two producers of a crop, so, even though we may be able to get responses from the growers in a county, we are not always able to publish estimates for the county. The lesson is to contact all known growers and make extra efforts to collect their data to maximize the chances of publishing the estimates.

Contact Person

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Additional Information

The specialty crop county estimates can be found on the MT FO website:
www.nass.usda.gov/mt