Wyoming Department of Agriculture

Specialty Crop Block Grant Program – Farm Bill

Agreement No. 12-25-B-1265

Final Performance Report

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WYOMING POTATO MARKETING AND ENHANCEMENT-COUNTRY PRIDE POTATO

PROJECT SUMMARY

Wyoming potato growers are seeking new markets in an environment that has become taken over by large players. The first issue at hand is to be able to continue the contract with PCAN. This contract allows for PCAN to conduct specific tests that are vital to raising seed and exporting potatoes. The purpose in obtaining this grant is to further the market share that is available to Wyoming companies through certification of the potato crop. South East Wyoming is a prime location for marketing seed as well as table stock to Mexico and Wyoming local markets. Because the farm locations in Wyoming are remote, it provides excellent disease control and proximity to approximately 40,000 acres of commercially grown potatoes in Colorado Front Range, Texas, Kansas, and Nebraska areas. The seed production area in Wyoming provides a freight advantage over many rivaling seed producers helping to enhance Wyoming's market share. In addition to the seed and export markets, there was an opportunity to grow our "home grown" local markets. Within a 150 mile range of eastern Wyoming various local markets are available including the Panhandle of Nebraska area.

PROJECT APPROACH

The seed and export marketing strategies required numerous tests and certification provided by the Potato Certification Association of Nebraska. The contract between the Wyoming Department of Agriculture and the PCAN provided for the overall seed certification of Wyoming potatoes. Steve Marquardt of the PCAN oversaw all seed documentation, field inspections, and winter test trials performed. The Wyoming Department of Agriculture (WDA) followed up with nematode surveys. WDA currently has ten complete years of nematode history for land in production. Each seed lot was given a specific lot number by seed variety and geographic location. The lot then can be traced from plant date thru harvest and shipping.

All activities regarding certification were completed in 2012. PCAN performed the 1st and 2nd visual inspections in Wyoming as planned in 2012. Leaf samples were collected on the 2nd inspection so that PVYN testing could be done in the PCAN lab in Berea, NE. The testing and documentation provided by PCAN were vital to marketing potatoes. Without this resource the Wyoming growers would be unable to obtain phytocertificates for export or the proper seed documents to market certified seed domestically. Initially Country Pride also sought to expand sales in the local markets within a 150 mile range in Wyoming and Nebraska Panhandle. This grower was selling to schools in 50 lb units was adversely impacted by lack of irrigation water in 2012 and hail in 2013. Because of this they temporarily shifted much of their potato acreage to western Nebraska. As such the plan to develop a Wyoming potato bag for marketing local product was put on hold. After careful deliberation it was decided the remaining grant money

would be returned to WDA. The WDA after consultation with USDA AMS Specialty crop manager developed a more generic consumer oriented bags with Buy Fresh buy Local logo to promote specialty crops. These were purchased and continue to be distributed to winter farmers markets after school garden programs to increase the awareness of Wyoming specialty crops.

GOALS AND OUTCOMES ACHIEVED

Goal 1: Maintain and expand domestic and international Wyoming seed market sales through continued access to PCAN certification.

Benchmark: In 2011 there were 279 acres of seed potato production in WY.

Target: Wyoming potato growers are seeking to expand markets in an environment that has become taken over by large players by continue the contract with PCAN to conduct specific tests that are vital to raising certified seed for domestic seed and export market.

Outcome: The number of commercial seed potato growers increased from two to three. Even with though the number of acres in the LaGrange was drastically reduced, the total number of acres in Wyoming for 2012 grew to approximately 450 acres with the addition of a third grower who developed ground near Lusk Wyoming. In 2012-13 the Mexican market became less profitable with greater competition from Idaho growers but the Wyoming growers looked to the Canadian seed potato market for exports in addition to strong seed potato prices in the US. After review of Wyoming Department of Agriculture's Phytosanitary Certification reports the economic value to Wyoming growers of 22 loads of potatoes shipped to Canada is estimated to be $175,000. This was a 100% increase for Canadian market. Our target was to increase sales of certified potatoes by 10%. Of the potatoes grown approximately 70% sell for seed with the remainder going to table stock or processing. This represents a 61% increase.

Goal 2: Further develop local Wyoming and Nebraska markets through development of a Wyoming branded bag for local consumers.

Benchmark: No Wyoming branded potato sales to consumer by growers.

Target: Develop "home grown" local markets within a 150 mile range of eastern Wyoming various local markets are available including the Panhandle of Nebraska area.

Outcomes: Due to sever water shortages in Lagrange area this goal was not accomplished. In its place two thousand one hundred Wyoming Buy Fresh Buy Local bags were purchased and are continuing to be distributed to winter farmers markets and after school garden programs to increase the awareness of Wyoming specialty crops. Six hundred bags have been distributed. Promotion of Wyoming seed potatoes using several hundred BFBL bags have been planned to increase awareness of the seed potato industry at several local events.

BENEFICIARIES

With the certification process, Wyoming certified potato growers have the ability to enter multiple markets that offer higher pricing. These include the domestic seed market or meet the criteria in order to ship internationally. Each year is unique. Export sales vary from grower to grower and what may be prevalent one year with a higher net return will the following year may be just the opposite. The certification program allows Wyoming producers to be versatile in the market place with the possibility of extended growth. The beneficiaries of this project include Country Pride Potato, LLC, LaGrange, WY, Brown Enterprises, Pine Bluffs, WY, and Thompson Seed Potatoes as well as numerous employees of these entities. The potato growers also benefited from the project by their ability to value add their crop through certification. The difference between table stock and seed potatoes prices can vary year to year but on average seed potatoes average $10-15 out of storage while table stock can run $5-9. Over 2000 consumers will benefit from increased awareness of Wyoming specialty crops through the BFBL bag promotion as well. The increased value of certifying Wyoming potatoes as seed over table stock prices is estimated to be $760,000.

LESSONS LEARNED

Wyoming potato growers need to be constantly looking for marketing opportunities. As the Mexico market became less profitable the Canadian seed potato market opened up in addition to strong seed potato prices in the US domestic market so no potatoes were exported to Mexico. As with all plans crop damage is always a possibility and was responsible for not accomplishing development of local marketing.

CONTACT INFORMATION

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SEASON EXTENSION, EDUCATION AND PROMOTION OF SPECIALTY CROPS; PRODUCER SMALL GRANT PROGRAM

PROJECT SUMMARY

Through previous USDA specialty crop grants, Wyoming has offered small grants to producers and to develop and promote methods that will extend or increase specialty crop production

and consumption. The program has been incredibly successful and has been deemed as "the most productive way Wyoming can enhance the specialty crop program in the state". Since the inception of the program, grants have been awarded for producer high tunnels, irrigation systems, and other season extension methods. High tunnel workshops have been held at the Casper County Fair Grounds, North East Community College in Sheridan, University of Wyoming Arena in Laramie, and twice at the Wyoming State Fairgrounds in Douglas, Rawlins fairground, Lusk, Gillette, Powell, Worland and Pine dale to name a few. High tunnels built in Wyoming have been shown to increase growing season, quality, and quantity of product. These tunnels are being built to withstand Wyoming wind, temperature, and hail. They also result in reduced water usage though drip irrigation and an increase in the variety of specialty crops available. This funding opportunity compliments the high tunnel workshop project by UWYO Cooperative Extension Service by providing grant opportunities to participants of those workshops. The goal of the projects was to increase specialty crop education, production, and consumption through season extension techniques and water conservation efforts. This small grant project allows small grants (not to exceed $3,500) to be awarded to Wyoming producers. Grants included high tunnels, low tunnels, row covers, water conservation systems and other methods that will extend or increase specialty crop production, processing, promotion, education, and consumption in Wyoming. Approximately six grants were awarded with the requested funds. This small grant program enhanced the grant proposal by Cooperative Extension to conduct high tunnel workshops. This program was able to offer producer grant opportunities to workshop participants who plan on building a hoop house to diversify into or expand their specialty crop production.

PROJECT APPROACH

Small grants were awarded to producers to increase specialty crop education, production, and consumption. Eligible grants will include season extension using high and low tunnel methods, water conversion techniques, and other methods that helped increase knowledge of specialty crop production. The program was marketed to the producers attending UW Cooperative Extension high tunnel workshops that construct high tunnels, producers attending the Wyoming Farmers Marketing Association Conference and UWYO producer conferences. The current application and guidelines were updated and posted on the Wyoming Department of Agriculture web site (http://wyagric.state.wy.us/) and marketed through media releases, at trade events meetings and conferences. Application process included submitting an application that included specific goals related to specialty crop production, impacts, outcomes, work plan, budget, and letter of support from a local entity that can vouch for an applicant's involvement in agriculture production. Expenses were limited to materials for hoop houses and submitted reimbursements receipts were reviewed to confirm that the expenses are eligible and substantiated with proof of purchase. The Wyoming Community Network continued to manage

the program and WDA continued to help review applications and requests for reimbursements and performed site visits to confirm work done. Beneficiaries of the small grant program were producers, consumers and students of all ages. Applications were reviewed by WDA and Wyoming Community Network and successful applicants notified. A power point was developed and updated after feedback from producers of a sample grant application to help producers develop projects that meet the need for multiple impacts.

WYOMING SPECIALTY CROP PRODUCERS SEASON EXTENSION SMALL GRANT PROGRAM

PURPOSE

Small grants will be awarded to specialty crop agribusiness operations to develop methods for season extension, increased productivity and native seed production. Eligible grants will also include water conservation methods.

Eligibility Requirements

Wyoming producers are eligible to apply for a Wyoming Specialty Crop Grant if they meet the following criteria:

1. Be a private-sector Wyoming-based agricultural producer as defined by USDA.
2. Demonstrate that producer is capable of capitalizing on methods that will enhance their specialty crop production through season extensions, water conservation, and native seed production.
3. Has received a recommendation from a local entity or individual that can vouch for your involvement in agricultural production.

Eligible expenditures are limited to materials necessary to erect a high tunnel; equipment to develop drip irrigation system...

Ineligible expenditures include travel such as lodging and meals and mileage, and expenditures directly related to the operation of the business, such as salaries.

AWARD LIMITATIONS

This is a matching program. The total grant award is limited to 75% to a maximum of $3500 of the actual eligible expenditures per year. The minimum amount of a grant is $500. Each Agribusiness is limited to no more than $7000 over the life of the season extension program.

Requirements of Agribusiness Participants

Documentation. The Farmer/Rancher must complete and submit to the Wyoming Department of Agriculture the following forms for reimbursement: 1) *Request for Reimbursement*; 2) *Itemized Expenditure*; and, 3) a detailed *Final Report* on the grant by September 1, 2014. Copies of, canceled checks (both sides), invoices, and other confirmation of payment must be submitted for reimbursement.

Application Process

Potential participants of the Wyoming Specialty Crop Grant Program must complete and return the application and the required attachments **by August 1, 2014.**

PLEASE NOTE: Expenditures incurred without written or electronic confirmation from the Wyoming Department of Agriculture are not eligible for reimbursement. **The application process cannot be started after the agribusiness has purchased the materials or supplies for the project.**

GENERAL GRANT INFORMATION

The Wyoming Specialty Grant Program is a reimbursable grant; and as such, the applicant must pay all expenditures before the grant award can be disbursed. The business shall function independently in performing this activity and shall assume sole responsibility of any debts or liabilities that may be incurred in regard to this grant. The grant award cannot be assigned.

Return application forms to:

Wyoming Department of Agriculture
2219 Carey Ave.
Cheyenne, WY 82002

*****This program has a limited amount of funds. Preference will be given to qualified first time applicants and the Wyoming Department of Agriculture reserves the right to deny applications that are not complete or otherwise deemed not eligible.*****

Applications were reviewed by the WDA and WCN for approval if they met the programs requirements and had multiple impacts greater than the applicants operation. They are then informed of their successful application. After completion of the project they are required to fill out a request for reimbursement that includes final report, copies of invoices and proof of payment. In order to determine whether an applicant is eligible they are encouraged to read the requirements of the grant online or to call the WDA or the WCN first. This way we do not receive applications from individuals or agribusinesses that waste their time only to find out they are ineligible. We also provide potential applicants with a copy of the power point of a sample grant. Grants were reviewed on a first come first serve basis but preference was given to producers who are first time applicants. If grant application do not show multiple impact they are returned to agribusinesses with suggestions on what are considered acceptable multiple impacts.

The following producer grants that demonstrated an increase in awareness as a multiple impacts have been awarded:
Alpine Gardens: Impacted over 200 people attended farm day
Shochone River Farm Impacted 50 CSA members and 2 home gardeners built hoop houses
Tl Ranch Impacted 10 neighbors and master gardeners to date but school tours are planned
Wild Winds: Impacted 37 master Gardeners toured hoop house, four private tours totalling an additional 16 people of which one is building a hoop house. Gave Class to 35 people at Passion for Food Conference on high tunnel production.

Ellis Home Harvest: Impacted 39 familys and several hundred students who come to farm for the corn maze and pumkin patch. They were exposed to hoop house production.
Richie Farm: Impacted 10 neighbors
My Oasis: Impacted 40 home school students

GOALS AND OUTCOMES ACHIEVED

Goal - Increase specialty crop education, production, and consumption through season extension techniques, water conservation, and other projects that will extend or increase specialty crop production and consumption in Wyoming.
Benchmark - Number of grants awarded for season extension in the past is 24 and the number of people impacted per grant averages 30.
Target – We expect the number of grants awarded for season extension techniques in this cycle to increase by 6 and the number of people directly impacted by farm days and CSAs to be 180. The number of season grants awarded to producers was 7. All data from the recipients was collected through final reports submitted for grant reimbursement. The total number of people directly impacted by the projects was over 400.
Goal - Increase amount of locally grown specialty crops available for sale through expansion of farmers' markets
Benchmark - In 2010 there were 34 summer markets and 3 winter markets with a total of 365 market days.
Target – Through the utilization of season extension techniques, increase the number of farmers market days with locally grown specialty crop available by 5% to 384 days
Outcome: By analysis of information received from farmers market managers were able to determine that the number of famers markets increased to 50. This consisted of 46 summer markets and 4 winter markets. The total number of market days increased to 542 days a 41% increase. Information from the Agribusiness Division of the Wyoming Business Council indicates that Wyoming Farmers' Markets generated nearly $1.7 million of direct sales throughout Wyoming during 2012. This was an increase of $900,000 at Wyoming Farmers' Markets generated throughout Wyoming during 2011 Based on a 2011 IMPLAN model for the state of Wyoming it is estimated that the $1.7 million of direct sales generated secondary sales of more than $525,000 for a total economic contribution to the Wyoming economy of more than $ 2.2 million. This represents more than $1.30 of total sales for every $1.00 of direct sales by Farmers' Markets. This economic activity supported the equivalent of more than 20 annual jobs in the state's economy with labor income of nearly $525,000. The average annual earnings per job are estimated to be nearly $25,600. The 20.5 annual job equivalents generate by

Wyoming's Farmers Markets represents more than 42,600 hours of employment with a wage rate of $12.30 per hour.

BENEFICIARIES

Beneficiaries included seven producers and seven farmers markets that had a greater amount of produce and for a longer time. There were also over 400 students, master gardeners, producers, CSA members and home gardeners who were impacted over and above the producers.

LESSONS LEARNED

We continue to have to monitor applicants to make sure that they are progressing on their projects. Producers struggle to understand grants application process. A power point was developed to highlight multiple impacts need for the grant. We also provide information on where they can source materials to build it themselves or purchase kits.

CONTACT INFORMATION

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SEASON EXTENSION, EDUCATION AND PROMOTION OF SPECIALTY CROPS; NON PROFIT ORGANIZATION SMALL GRANT PROGRAM

PROJECT SUMMARY

Through previous USDA specialty crop grants, Wyoming has offered small grants to nonprofit organizations to develop and promote methods that will extend or increase specialty crop production and consumption in Wyoming. Since the inception of the program, grants have been awarded for promotion of specialty crops through construction of hoop houses/high tunnels for schools, communities, and other nonprofit organizations to provide production and educational opportunities in the climate challenged areas of the State. In addition, three previous grants have been awarded for community Garden Projects. The results of the community gardens built in Wyoming have been an increase in knowledge, production, and consumption of specialty crops. Community gardens often incorporate hoop houses (high or low tunnels) to help conserve water, extend the growing season, and protect crops from hail, wind, and cold. Many areas of Wyoming need to use hoop house production methods in order

to grow climate sensitive vegetables such as tomatoes, cucumbers, etc. Recently, due to the USDA Farm to School Initiative programs, more schools are a looking at gardens and hoop houses to provide opportunities for their students to experience growing local fruits and vegetables. This initiative provided funding to these types of projects.

PROJECT APPROACH

This project provided small grants, no greater than $3,500, were awarded to nonprofits and schools. Grants included school and community gardens, hoop houses, water conservation, and other methods that increased specialty crop production, promotion, education, and consumption in Wyoming. Six (6) grants were awarded with the requested funds. This small grant program enhanced other efforts being undertaken by the Wyoming Specialty Crop grants. The following are requirements for nonprofit grants. Applications were reviewed by WDA and WCN staff to determine if the project had outcomes and multiple impacts that solely enhanced specialty crops. Those that met the criteria were informed that they had been successful in their application. Seven applications were received and six were funded.

COMMUNITY GARDEN GRANT FOR NONPROFIT ORGANIZATIONS
WYOMING SPECIALTY CROP GRANT PROGRAM

Guidelines

PURPOSE

Small grants will be awarded to nonprofit organizations and educational institutions to promote Specialty Crop season extension through community garden projects.

Eligibility Requirements

Wyoming nonprofit organizations are eligible to apply for a Wyoming Crop Specialty Program Community Garden Grant if they meet the following criteria:

1. **Be a registered Wyoming-based nonprofit organization or an educational institution in the State of Wyoming**.
2. Demonstrate that the organization is capable of promoting the use of specialty crop production through a community garden.
3. Have received a recommendation from a local agricultural entity that can vouch for their commitment to specialty crop agricultural production, promotion or education.

Eligible expenditures are limited to materials for raised beds, low tunnels, row covers, irrigation supplies, soil amendments, mulch, garden tools, specialty crop seeds, starter plants and other pre-approved costs necessary to construct a community garden.

In-kind matching expenditures may include cash, donated labor, rental equipment and other approved expenditures directly related to the construction of the community garden.

Ineligible grant expenditures include but are not limited to shipping, salaries and administrative costs.

AWARD LIMITATIONS

This is a matching program. Nonprofit organizations may receive a maximum of one specialty crop grant up to August 21 2014. The total grant award is limited to 75% of the actual eligible expenditures. The minimum amount of a grant is $500. The maximum a grant is $3500.

Requirements of the Organization Participant

Documentation: The nonprofit organization must complete and submit to the Wyoming Department of Agriculture the following forms for reimbursement: 1) *Request for Reimbursement*, 2) *Itemized Expenditure* and, 3) a detailed hard copy and electronic copy of final report on the grant on or before September 1, 2014. Copies of canceled checks (both sides) or other confirmation of payment and invoices must be submitted for reimbursement.

PLEASE NOTE: Expenditures incurred without written or electronic confirmation from the Wyoming Department of Agriculture are not eligible for reimbursement. **The application process cannot be started after the nonprofit organization has purchased materials being requested in the grant for the community garden.**

GENERAL GRANT INFORMATION

The Wyoming Specialty Grant Program is a reimbursable grant; and as such, the applicant must pay all expenditures before the grant award can be disbursed. The organization shall function independently in performing this activity and shall assume sole responsibility of any debts or liabilities that may be incurred in regard to this grant. The grant award cannot be assigned.

Return application forms to:

Wyoming Department of Agriculture
2219 Carey Ave.
Cheyenne, WY 82002

*****This program has a limited amount of funds. Money will be dispersed on a first come, first serve basis and the Wyoming Department of Agriculture reserves the right to deny applications that are not complete or otherwise deemed not eligible.****

Application and guidelines were updated. Application and guidelines will be posted on the Wyoming Department of Agriculture web site (http://wyagric.state.wy.us/) and marketed through media releases, workshops and conferences. The following grants were reviewed for eligible expenses and impacts and were funded:

Wheatland Middle School
Boys and Girls Club of Douglas
UWYO Sublet County Extension
Osage Kitty Moats Community Garden
Laramie County Conservation District School Project
Town of Medicine Bow Community Garden

Documents were reviewed by WDA and WCN to ensure invoices and proof of payments were specific to project and only benefit specialty crops and are eligible under the program.

GOALS AND OUTCOMES ACHIEVED

Goal - The goal of the project is to increase specialty crop education, production, and consumption through community/nonprofit garden or hoop house projects that will expand or extend the growing season of specialty crops grown in Wyoming.

Benchmark 1- Number of communities/schools that have received grants in the past is twelve (12) impacting 240 people. Three community gardens that were previously funded impacted a total of 195 individuals.

Target –To increase the number of garden or hoop house projects by six (6) and the number of people directly impacted to increase by 40% or approximately 180 people.

The number of hoop house and garden projects has increased to 18. Over 2400 students, gardeners and members of the general public were impacted by the projects.

Project 1 Wheatland Middle School

Goal: The students of Wheatland Middle School will learn how to plant, care for, and harvest food crops grown in a high tunnel.

Goal: The students of Wheatland Middle School will learn to prepare, cook and serve fresh vegetables and herbs.

Outcome: At the start of the project less than one percent of our students had experience with hoop houses and only 5% had any gardening experience. Since building the hoop house 92% of the students have been involved in planning and building the hoop house. 50& have been worked to plant, weed and harvest crops. Students have been able to incorporate math and technology into lessons and have used some of the produce to make salsa**.** The total number of students impacted has been 200 plus 24 staff.

Project 2 Boys and Girls Club of Douglas

Goal: The Boys & Girls Club of Douglas will educate members using the Teaching Self-Sustainability through Agriculture program starting in April of 2013 until October of 2013. With this program members will learn about agriculture, responsibility, cooking, marketing and salesmanship, preserving methods and community involvement through hands on experiences. Three different types of gardens will be planted including an herb garden, vegetable garden and fruit garden. The Boys & Girls Club of Douglas plan to make this activity a yearly project for its members. Members will grow gardens in the Douglas, Wyoming community. The Boys & Girls Club of Douglas also has a small garden area next to their building that will be planted and maintained by the members. The members will maintain all areas of the project at both locations including soil preparation, planting, watering, fertilizing and harvesting.

Outcome: The primary beneficiaries are the nearly 400 members of the Boys & Girls Club of Douglas. Throughout the summer with this program members receive produce raised in the gardens as part of these snacks and meals. This produce provided nutritious snacks that are healthier options for the members of the club.

Project 3 UWYO Sublet County Extension

This project will provide a new venue for Sublette County Extension and area clubs/schools/etc. to educate and work with our community. The project is important to the residents of Sublette County, because it will demonstrate and provide an outlet where they can learn about gardening in a challenging environment (e.g., short growing season, arid climate, etc.), and provide locally grown produce.

Goal: Provide an interactive, educational workshop about how to build a high tunnel to raise specialty crops.

Outcomes: We had 20 people participate in the hoop house workshop that taught them how to do it themselves. An additional 2 who stopped by to learn about what we were doing. We had an addition six people help to build raised bed. One family that helped with the workshop is building their own with the knowledge gained. Total number of people impacted is 28. In 2015 we plan on providing a hands-on classroom for the general public, clubs, schools, etc. to learn about growing specialty crops.

Project 4 Osage Kitty Moats Community Garden

Goal: To enrich the citizens of Osage with community involvement this will include having the Osage Park Committee, Osage Volunteer Firemen, Kitty Moats Complex Committee members and other citizens of Osage will assisting in the construction of the garden.

Outcomes: The project built 8 raised garden areas which will be ten ft by twenty ft by eighteen inches deep (10'x20'x18"). The raised garden areas can be divided into two (2) or four (4) areas. A mounded orchard or seven trees was planted. Ten garden plots directly impact a total of 25 people.

Project 5 Laramie County Conservation District School Project

Goal: The goal of this grant is to provide opportunities to increase the knowledge of students on hydroponic growing; thus laying a foundation for self sustaining skills and nutritional habits for the rest of their lives. Learning can be taken to the next level through the use of curriculum and hands-on experience in the classroom at any time of the year. The effect of the knowledge being learned can have a long term effect on the economy as our future generations depend more upon their skills and knowledge to grow their fresh produce

Outcome: Six Albany county schools incorporated hydroponic vertical growing into the classroom to enhance learning opportunities, one tower was utilized for year-round garden clubs to provide opportunities to increase the knowledge of students and adults on hydroponic growing and an alternative to traditional farming practices that are limited due to short growing seasons. One is housed at the Medicine Bow Conservation District (MBCD) to enhance their educational outdoor gardening and hoop house program. There were approximately 1514 students that participated in or were exposed to the vertical tower project. An additional 231 summer garden students who participated in the project.

Project 6 Medicine Bow

Goal: To provide residents of Medicine Bow a small rural town with fresh and nutritious produce and the gardeners the space to grow them.

Outcome: We were able to fence the garden area and have the tools and a greenhouse. Five people participated in the garden. The residents pitched in and worked together for the common goal. The impact was not as great as we had hoped for as a hailstorm created quite a setback, and we will have to figure something out for that occurrence in the future. Next year we can get an early start on the growing season and hopefully have a fantastic garden next year.

BENEFICIARIES

Beneficiaries included over 2400 students, producers, master gardeners and home gardeners. The projects were varied between schools, community gardens, nonprofit community organizations and UWYO extension services.

LESSONS LEARNED

We continue to have to monitor applicants to make sure that they are progressing on their projects. On several occasions non profits have gone through staff changes and the projects stall. This does not happen often but when it does it has been necessary to meet with the new personnel on the goals and outcomes expected from the project. We also provide information on where they can source materials, request a hoop house workshop, or purchase kits.

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SPECIALTY CROP SCHOLARSHIP/EDUCATION OPPORTUNITY GRANTS

PROJECT SUMMARY

The purpose of the project is to continue to provide information to farmers' market managers on food safety and market management while educating specialty crop vendors on production, marketing and food safety. Specialty crop vendors look to the market manager to be knowledgeable on all the rules and regulations that they need to follow in order to sell their produce. A well trained manager ensures the market will be operated in a manner that is safe for consumers. Based on feedback, it is important that market managers are able to attend the annual Farmers' Market Conference. The 2012 conference was held in Riverton, WY. Most market managers in Wyoming are volunteers and this created significant financial burdens to potential market manager trainees from other parts of the State. The goal was to provide up to 20 scholarships to decrease the burden on these volunteers in order to allow them to attend the market manager training and conference. A second goal was to increase the knowledge of western Wyoming specialty crop producers on production and marketing by providing expert speakers on topics of interest. The project was implemented at a time where the local food movement was in full swing. Because Wyoming does not have the conditions for extensive fruit and vegetable production, much of the produce is often shipped in and purchased from other states with a more favorable climate for growing. The opportunities provided in this grant gave Wyoming market managers and specialty crop producers the necessary knowledge to increase their production, safety methods in the field, transporting and at the market and a support system for questions. As Wyoming's farmers markets increased from 30 to over 50 the education of market managers and vendors was of utmost importance in order to grow the local production safely and profitably and sustaining the growth of such products in the state of Wyoming. Not only did the project provide education and increased opportunity for local foods, but as a secondary result, the project aided in providing the people of Wyoming safe, fresh, nutritious and quality items for a healthy lifestyle.

PROJECT APPROACH

The Wyoming Farmers Marketing Association Conference was held April 27-29, 2012 in Riverton, Wyoming. The location was chosen as Riverton is a regional locale for the western part of the state. The conference was planned with a strong emphasis on specialty crop education and promotion. Of the nine (9) speakers presenting at the 2012 conference seven (7) of the nine (9) speaker spent 100% of their time on specialty crops. The other two speakers presented on both specialty and generic crop production. 50% of their time was allocated to specialty crop education. Attendance for the 2012 conference was down from 2011, but accomplished the goal of targeting western Wyoming participants with an increase of 22% residing in the western region of Wyoming. Further meeting that project goals, 18 of the 20 scholarships offered to aid in the travel expenses to attend the Market Manager Certification and Conference were utilized. The 2012 Wyoming Farmers Marketing Association Conference

accomplished the goals of the project, but did not expend all of the funds allocated for the project. As a result, the remaining funds were carried over to the 2013 Conference held March 8-9, 2013 in Laramie, Wyoming. All scholarship and speaker monies were expended with the awarding of ten (10) scholarships and speaker presentations on specialty crop topics. As Laramie is in the SE corner of the state, emphasis on increasing western Wyoming participation was not as feasible. However, 16.67% of the total attendees resided in the western part of the state-thus traveling hundreds of miles in order to attend the training and conference.

GOALS AND OUTCOMES ACHIEVED

The purpose of the project was to continue to provide information to farmers' market managers on food safety and market management while educating specialty crop vendors on production, marketing and food safety. Market vendors look to the market manager to be knowledgeable on all the rules and regulations that they need to follow in order to sell their produce. A well trained manager ensures the market will be operated in a manner that is safe for consumers. Based on feedback, it is important that market managers are able to attend the annual Farmers' Market Conference. The 2012 conference was held in Riverton, WY. Most market managers in Wyoming are volunteers and this creates significant financial burdens to potential market manager trainees from other parts of the State. The grant provided 28 scholarships to decrease the burden on these volunteers in order to allow them to attend the market manager training and conference. A second goal increased the knowledge of Western Wyoming producers on Specialty Crop production and marketing by 22% for 2012. The 2013 Conference was held in Laramie, Wyoming and only 16.67% of attendees resided in the Western part of the state.

Goal 1:

Provide scholarships to 20 market manager trainees to attend the 2012 Farmers' Market training and conference in Riverton, WY.

- 18 of 20 (90%) of scholarships were awarded

Outcomes:

2012

- 25 participants attended the Market Manager Training. This is down 3 participants from the 2011 Conference. However, overall attendance of the conference was down for 2012 due to a scheduling conflict with the Statewide Master Gardener Conference.
- 46.3% of the total conference participants attended the Market Manager Certification
- 72% of the participants attending the Market Manager Certification attended on scholarship.

2013

Goal – Provide scholarships to market manager trainees to attend the 2013 Farmers' Market training and conference in Laramie, WY.

- 10 scholarships were awarded
  - Four scholarships were awarded to college agriculture students
  - One of the four student scholarships was awarded to an out of state student
  - Six producer scholarships were awarded
- Of the six producer scholarships awarded…
  - Two were from the SW part of the state
  - One was from Central WY
  - One was from the Big Horn Basin
  - One was from Northern WY
  - One was from SE WY
- 35 participants attended the Market Manager Training. This is up 10 participants from the 2012 Conference.
  - This is an increase of 40% from 2012
- 72.9% of the total conference participants attended the Market Manager Certification
- 28.6% of the participants attending the Market Manager Certification attended on scholarship.

Goal 2:

Increase the knowledge of producers in western Wyoming on specialty crop marketing, production and preservation by providing access to expert specialty crop related speakers.

Outcomes:

Target – Increase the number of producers from the western part of the state to 32, a 100% increase, in 2012.

2012

- Although total attendance to the conference was down, there was a 22% increase in the number of attendees from Western Wyoming.
- 54 people attend the 2012 Farmers Market Conference in Riverton, WY April 27-29, 2012
  - 18 of the 54 attended on scholarships provided by the Specialty Crop Grant program.
- 7 of the 9 speakers were 100% specialty crop with 2 speakers spending 50% of their time related to specialty crop.
- 10 of the 18 scholarship recipients turned in expense vouchers for travel, MIE and lodging. The other 8 did not turn in reimbursement forms or did not have additional expenses for travel and/or lodging.

- 1 of the 18 scholarships was issued as a student scholarship. The remaining 17 scholarships were issued to producers and market managers.

2013

- 8 of 48 (16.67% of the 2013 participants reside in Western Wyoming.
    - Because the location was in Laramie (SE corner of the state), this represents a good showing from the western side of the state.
- 48 people attend the 2013 Farmers Market Conference in Laramie, WY March 8-9, 2013
    - 10 of the 48 attended on scholarships provided by the Specialty Crop Grant program.
- Four of the 10 scholarships went to students. One of the students came from Colorado State University in Colorado. All student scholarships were for $100 to cover the registration fee. Lodging was paid for the Colorado student. ($508.90 total)
- 6 of the 10 scholarships were issued as producer scholarships for reimbursement of up to $300.00. Four of the six were reimbursed the total $300.00, with a total of $1468.40 reimbursed to producer recipients.
- Total on scholarships: $1977.30
- All conference attendees were asked to evaluate the conference upon completion. Of the surveys returned, 100% of the participants said the sessions and speakers at the conference were “helpful”. Additional choices for speakers and sessions on the survey were “not helpful” and “neutral”. Participants were also given to option to suggest topics for the next conference as well as to provide comments on the conference. Of the specialty crop speakers, the vertical growing and pollinator’s sessions were most popular. These topics were also suggested for a more in depth or extension of the training for the next conference.
- The survey provided feedback from all participants, but communication with the attendees from the western side of the state showed development of new markets (Evanston, Kemmerer) and increased vendors and consumer attendance at existing markets (Rock Springs, Lyman). Current producers from the western side of the state were able to utilize information on food safety ensuring their marketable products were produced, transported and sold to the end consumer in a timely and safe manner.

BENIFICIARIES

A total of 186 persons were directly benefited by the project. 28 persons directly benefitted through the scholarship portion of the project. With the project providing funds to aid in the recruitment of expert speakers on specialty crop production and marketing, 158 participants had the opportunity to enhance their knowledge of specialty crops. Feedback from 2012 and 2013 show continued interest in specialty crops. Resulting from this interest, Wyoming

Farmers Marketing Association plans to continue efforts toward specialty crop education through their conference and additional hands-on workshops.

LESSONS LEARNED

Data and feedback collected from the 2012 and 2013 Wyoming Farmers Marketing Association Conferences show high interest in learning more about specialty crops, specifically how to produce them and the best approaches for marketing their crops. While the interest also applies to general crop production, many of the producers are looking to produce something new and novel to the Wyoming area. With the continued expansion of the local foods movement and the population's desire to know how and where their products were grown local and niche markets are seeing a higher demand for local foods and an increased marketing platform. Wyoming's diverse terrain and varying climate make the ability to grow certain crops in one area an easy task, while being impossible in another area of the state. Some of the location challenges have been overcome with the construction of hoop houses and other season extending methods. The increase of existing season extending structures also increased producer experimentation with an attitude of, "If we can grow X, why can't we grow Y. No one else is growing Y, so we could establish a new market for the product." The attendance at the 2012 and 2013 conferences shows that if an opportunity is presented, many people will make the effort to attend even if the travel time and expense is great. Our data shows that although local attendance is bound to be the highest percentage, participants will travel great distances for a quality presentation of a topic they have interest in. This is shown in the 16.67% of western Wyoming attendees at the 2013 conference located in the SE corner of Wyoming. While western attendance increased when the conference was held locally, there was only a slight decrease in the number of participants traveling a long distance to receive quality training. This project has allowed a collection of baseline data to be used to improve and continue to grow the interest and production of specialty crops in Wyoming.

CONTACT PERSON

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ADDITIONAL INFORMATION

2012

- Agenda
- Speaker Biographies
- Conference Evaluation
- Scholarship Application
- Student Scholarship Application
- Under Cover Veggies power point
- Soil power point
- GAP power point
- GAP pre-test

2013

- Agenda
- Manager Certification Course Agenda
- Speaker Biographies
- Conference Evaluation
- Scholarship Application
- CSA power point
- Pollinator power point
- Small Farm Technology power point
- Beekeeping photo power point
- Bees power point
- Indoor Farmers Market Vendor Profiles


6th Annual
Wyoming Farmers Market Conference
April 27-29, 2012 - Riverton, WY - Holiday Inn
Friday - April 27, 2012
Market Manager Certification - 10:00am - 5:00pm - Holiday Inn
Wyoming Farmers Market Reception - 5:30pm - 7:30pm - Holiday Inn
Saturday - April 28, 2012
Registration Begins at 7:00 am - Holiday Inn
8:00 - 8:25
Welcome and Opening Remarks
Renee King - Wyoming Farmers Marketing Association President
Track 1
Track 2
Track 3
8:30 - 9:30
The Future of Local Food Production: A Global Perspective
Tim Larsen
9:30 - 10:30
Undercover Veggies
The Adventure Continues
Catherine Wissner
What Comes First?
The Chicken or the Egg...
Del Jimenez,
Dawn Helms, Shane Thompson
Apple Trees:
Grafting and Growing
Steve Miller
10:30 - 10:45
BREAK
10:45 - 12:00
Grow Your Opportunities
Producer & Non-Profit Grants
Value-Added, Specialty Crop
Western SARE, WBC, FM, USDA-RD
What Comes First?
The Chicken or the Egg...
Del Jimenez,
Dawn Helms, Shane Thompson
Apple Trees:
Grafting and Growing
Steve Miller
12:00 - 1:30
Lunch & Wyoming Farmers Marketing Association Annual Meeting
1:30 - 2:30
From the Ground Up
Organic Soil Practices
Renee King
Online or in the Kitchen
Expanding Your Marketability
LeRoy Jons - Ted Craig
Good Agricultural Practices (GAP)
David Lott -UNL
2:30 - 2:40
BREAK
2:40 - 3:55
Farm to School Workshop
Julia Erlbaum
From the Ground Up
Organic Soil Practices
Renee King
Good Agricultural Practices (GAP)
David Lott - UNL
3:55 - 4:05
BREAK
4:05 - 5:15
Farm to School Workshop
Julia Erlbaum
Grow Your Opportunities
Producer & Non-Profit Grants
Value-Added, Specialty Crop
Western SARE, WBC, FM, USDA-RD
Solar Heating/Cost Effective Cooling for High Tunnels
Milt Geiger
5:15 - 5:30
Wrap-Up Panel
Sunday - April 29, 2012
High Tunnel Workshop - 9:00 am - 3:00 pm -- Riverton Fairgrounds
Conference Information
A block of rooms has been reserved at the Holiday Inn for $79.00/night.
Please call the hotel for reservations and specify you are with the Farmers Market Conference to receive the rate.
HOLIDAY INN (307) 856-8100
Member:
Market Mgr. Cert./Conference: $50.00
Conference Only: $25.00
Non-Member:
Market Mgr. Cert./Conference:.....$100.00
Conference Only:.....$50.00
High Tunnel Workshop:.....$25.00
Membership Information
WFMA Membership: $20.00
Buy Fresh Buy Local: $30.00
Markets, vendors, individuals and all other interested parties are eligible for membership.
Apply Online: wyomingfarmersmarkets.org
For more information:
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Renee King rking10@uwyo.edu
Linda Stratton 307-777-6592
linda.stratton@wyo.gov
Cancellation Policy
Cancellations received in writing prior to April 1, 2012 will receive a full refund. A $10 fee will be assessed for all cancellations after April 1, 2012.
No Refunds for No Shows!
Make all payments to:
Wyoming Farmers Marketing Association
PO Box 20939
Cheyenne, WY 82003
Register Online:
wyomingfarmersmarkets.org
www.wfmaconference.eventbrite.com
Sponsored By:
Wyoming Agriculture
Wyoming Farmers Marketing Association
Wyoming Rural Development Council
Growing Rural America Stronger
Wyoming Business Council
University of Wyoming Extension

THE WYOMING APPLE PROJECT THE WYOMING APPLE PROJECT

PROJECT SUMMARY

The Wyoming Apple Project identified locations of sweet apple orchards, remnant orchards, and individual trees of note throughout Wyoming. A total of 29 locations were visited to collect scions for grafting and nearly 600 bench grafts onto hardy rootstock were created. The beginnings of a specimen orchard (germplasm repository) for these young trees representing the diversity of apple cultivars from Wyoming, was created at the Wyoming State Fairgrounds in Douglas. In addition eight grafting workshops were presented with 157 people in attendance, and seven presentations on the project were made, with 240 people in attendance.

PROJECT APPROACH

The high cost of energy and transportation along with an increased focus on health and nutrition, has resulted in a growing demand for locally-produced fruits and vegetables. This

includes the sweet apple, one of the most recognizable and favored specialty crops, but one which is not currently in high production in Wyoming. The proposed project will initially establish a baseline of information regarding current producers of the sweet apple, and gage the interest of those who might consider becoming producers. Through this process, the specific heritage, antique and modern varieties of apples currently growing in Wyoming will be identified and scions of the best trees will be used to graft onto hardy rootstock to create a specimen collection of heritage, antique and modern varieties that thrive in the state. Finally, the proposed project will use a variety of techniques and deliverables to educate producers and potential producers about various aspects of sweet apples production.

Goal 1: Create a database of sweet apple producers, orchards (historic and in current production), hardy and prolific individual trees and varieties of apples for the state of Wyoming. Currently there is no such database so this is, of necessity, a first step. Throughout the duration of the project, but especially in the first year, a database of contacts was established who either had apple trees or who know about others who had suitable apple trees. The individuals in the database were contacted initially by telephone or email, and a follow-up meeting was scheduled with the highest priority contacts during the fruiting cycle to examine orchards and individual trees and their fruits to flesh out the database. In addition, a website for the project was developed. This will allow anyone to enter the site and add information on specific orchards or individual trees when launched. In addition, the site will follow the progress of the project and will have a large collection of links containing information on growing apples, apple varieties, apple pests, and pruning. Several heritage orchards were identified, one in Torrington, one in Powell, one in Lander, one near Ft. Washakie and one in Cheyenne. These orchards as well as several homesteads have trees that are up to one hundred years old and were visited to harvest scions for grafting on to drought and cold tolerant root stock. Samples of the apples were obtained for determining what trees were to be selected for scions.

Goal 2: Work with producers and individual land-owners to obtain scions from the best (most hardy, most productive) trees for grafting onto hardy rootstock.

The scion wood collected was used in grafting workshops, demonstrations and for the specimen orchard. Because the examination of the apples during fruiting was not the appropriate time to collect scions, it was necessary to travel to apple locations again during the late winter. Initial sites were identified in the summer of 2012. Five heritage orchards were visited, including the site of the former the site of the Ed Young orchard which was the first orchard

planted in Wyoming, the Experimental Fruit Farm in Lander, the McMurray orchard planted in 1929, the Pope orchard panted in 1905, and the former Lund orchard planted in 1913.

Goal 3: Establish a sweet apple specimen (aka germplasm repository) orchard at the Wyoming State Fairgrounds in Douglas.

The most promising bench grafted trees of sweet apple varieties as well as promising modern varieties will be transplanted to a site at the Wyoming State Fairgrounds in Douglas during year three of the project.

The beginning of an orchard was established on the Wyoming State Fairgrounds. The first nine heritage apple trees were planted in time for the 2012 Wyoming State Fair. The manager of the Wyoming State Fairgrounds had arranged for caring and maintaining the specimen orchard by maintenance personnel. Seventy-five additional trees representing the variety of apples discovered in heritage orchards around the state will be planted in the spring of 2015.

Goal 4: Develop a series of educational deliverables designed to educate potential producers about growing sweet apples in Wyoming.

A series of at least four workshops, planned in conjunction with the Wyoming Department of Agriculture, were presented in different parts of Wyoming to producers and potential producers of sweet apples. Topics included planting techniques, grafting and pruning methodology, variety characteristics and climate parameters, and pests and their control. The first of these workshops was completed at the Wyoming Farmers Marketing Conference in Riverton (16 March 2012). Additional half-day workshops were present to the Master Gardeners in Cheyenne (27 October 2012), the Wyoming Farmers Marketing Conference in Laramie (9 March 2013), Wheatland Master Gardeners (1 June 2013), Powell (3 June 2013), Sheridan (13 June 2014), Guernsey (6 May 2014), and again in Powell (8 May 2014). In total, over 300 grafted apples were dispersed into these communities. Lectures on growing apples was presented to the Master Gardener Graduation in Cheyenne (27 October 2012), Master Gardener Class in Laramie (26 February 2013), Powell Master Gardeners (2 June 2013), Wyoming Stock Growers Association in Casper (12 February 2014), Farm and Ranch Days in Riverton (1 March 2014), Master Gardener and Farmer's Market Conference in Sheridan (13 March 2014), Master Gardeners in Casper (27 Mar 2014), Home and Garden Expo in Lander (8 April 2014), and the Specialty Crops Workshop in Wheatland (1 November 2014).

GOALS AND OUTCOMES ACHIEVED

Goal 1: Create a database of sweet apple producers, orchards (historic and in current production), hardy and prolific individual trees and varieties of apples for the state of Wyoming.

Benchmark: Currently there is no database.

Target: A database of contacts will be established of people who have suitable apple trees.

Outcome: The project was able to identify over 60 orchards/ remnant and sites of individual trees. The individuals in the database were contacted initially by telephone or email, and follow-up meetings were scheduled with the 29 highest priority sites during the fruiting cycle to examine orchards and individual trees and their fruits to flesh out the database.

Goal 2: Work with producers and individual land-owners to obtain scions from the best (most hardy, most productive) trees for grafting onto hardy rootstock.

Benchmark: None available

Target: Scion wood will be used in proposed workshops, demonstrations and specimen orchard to preserve these heritage trees

Outcome: Over 600 scions from the visited sites were bench grafted onto hardy root stack. These whips will preserve the genetics of the trees that have survived over 100 years.

3) Establish a sweet apple specimen (aka germplasm repository) orchard at the Wyoming State Fairgrounds in Douglas.

Benchmark: None available

Target: The most promising bench-grafted trees of sweet apple varieties will be transplanted to a site at the Wyoming State Fairgrounds in Douglas during year three of the project.

Outcome Measurement: The first 9 trees have been planted. As the young trees grafted last year mature additional ones will be added to the site. During the State Fair held in August signage was erected at the site to raise awareness of the project. Young trees were also displayed at a booth with a flyer explaining the project.

Goal 4: Develop a series of educational deliverables designed to educate potential producers about growing sweet apples in Wyoming.

Benchmark: none available

Target: A series of at least four workshops will be presented in different parts of Wyoming to producers and potential producers of sweet apples.

Outcome Measurement: Eight grafting workshops were presented. Topics included planting techniques, grafting and pruning methodology, variety characteristics, climate parameters, and pests and their control. A total of 157 people were trained to graft apple scion wood collected from heritage trees and grafted onto new root stock. Surveys showed participants had little to no knowledge or prior experience grafting apple trees. Each participant was given scion wood and shown how to do a whip and tongue graft. They were then coached on their grafting technique. This hand's on approach increased the knowledge of the all participants by 80-100% on the whip and tongue grafting technique and provided them with the skill necessary to successfully graft additional apple trees on their own. Over 300 heritage apple trees were

grafted by the participants and dispersed from these workshops. Seven additional presentations on the project were made increasing the awareness of heritage apples in Wyoming to 240 people in attendance. These additional talks were in response to an increased awareness of what we were researching and focused mainly on the history of apples and information on the heritage apple project.

BENEFICIARIES

Because there are few sweet apple producers in Wyoming, relatively few individuals in the state were educated on the techniques required for growing and maintaining sweet apple trees. Farmers and potential producers that participated in the workshops and other educational opportunities afforded by this project were directly impacted by becoming more knowledgeable about different varieties of sweet apples and production practices. All previous workshops and presentations to date have received an overwhelmingly positive response. No database of producers, varieties, or production of sweet apples existed in Wyoming before the project. This project was the first to begin establishment of such a database, which now includes over 60 orchards/ remnant and sites of individual trees. This was extremely helpful in establishing best practices for sweet apples as a specialty crop in Wyoming, and allowing potential producers to become more confident in a commitment to produce and market sweet apples. It is estimated that presentations of eight grafting workshops and seven presentations on growing apples and the Wyoming Apple Project to the Wyoming Master Gardeners, the Wyoming Farmers Market Association and the Wyoming specialty crop producers we impacted approximately 400 producers, master gardeners and other individuals interested in growing apples.

LESSONS LEARNED

As we can attest from the response to talks on Wyoming apples and grafting workshops we have presented, there is a large and increasing interest in growing and eating apples in Wyoming both at the backyard level and at the commercial level. There are numerous orchard remnants and notable individual trees around the state and regardless of whether people are actively caring for or commercially utilizing these trees, they are acutely aware of their presence. Many of these trees are in rough shape, and many have already been lost. The identification to cultivar of most of the trees has also been lost, but people know the characteristics of the trees and how best they can utilize the apples from individual trees and cultivars. Many people are extremely interested in planting “Wyoming” apples, cultivars that were planted in the late 19th and early 20th centuries, and have now been saved by this project. It is not difficult to see how nurseries and other commercial enterprises will benefit from this research.

CONTACT INFORMATION

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ADDITIONAL INFORMATION

The project will continue to document and provide information and training via funding from a 2014 specialty crop grant.

INCORPORATING ENHANCED SOLAR ENERGY COLLECTION AND STORAGE INHOOP HOUSE DESIGN AND PRODUCTION

PROJECT SUMMARY

The goal of the project was provide practical information to producers on cost effective heat sink and enhanced solar collection methods that will further extend the growing season of specialty crops in hoop houses. There was substantial interest in methods to increase the growing season in Wyoming hoop houses. Preliminary investigation showed there had been very little practical research done in Wyoming to test the effectiveness of various heat sink technologies and understand how they might further increase the number of production days of specialty crops in hoop houses. The intention of this project was to investigate the use of known and economically sound tactics that could be incorporated into hoop house (or high tunnel) production and would further extend the growing season in Wyoming. For this demonstration, five traditional 12-ft X 32-ft hoop houses using a modified design developed by Del Jimenez (Extension Agricultural Specialist, New Mexico State University) were constructed on the demonstration site. Although pre-engineered kits are available from a variety of suppliers, Jimenez's design is one of thrift, utilizing locally available materials where possible, and with modifications these structures can withstand even the most brutal environmental conditions of Wyoming.

Laramie, WY (elevation 7200 feet) at the UW ACRES Student Farm (**A**gricultural **C**ommunity **R**esources for **E**veryday **S**ustainability) was selected as the demonstration location; the 5 structures were oriented east to west with a 25-ft clear ground buffer between each. All treatments were positioned in a block north to south in the growing area.

The five individual high tunnel treatments include (**BOLD** two letter code is the KEY for all data table and figures):

1. A single woven polyethylene skin layer **(OD = Original Design/Control)**.
2. A double polyethylene skin layer **(2X).**
3. High density polyfoam insulation (R-value of 9) barrier buried vertically around the perimeter to a depth of 18-inches. **(IB = Insulated Barrier).**
4. Blue plastic barrels, painted black, and filled with water **(BB = Black Barrels)**.
5. Combination of double polyskin, insulated foam barrier, and plastic barrels filled with water **(ALL)**.

The individual hoop houses were monitored for soil and air temperature and production. The project was intended as a demonstration project – only. However, we felt the temperature and yield data could be useful in order to better understand any differences between the treatments.

The high tunnels were incorporated into the production system of ACRES farm. The structures were, and continue to be, fully utilized by student farmers. The project was also used as a teaching tool and demonstration for aspiring agriculturalists, including University of Wyoming Students, Master Gardeners and ACRES volunteers. Results were presented at a national Extension conference, Joint Council of Extension Professionals, Galaxy IV 2013 in Pittsburgh, PA. A forthcoming factsheet will also be published entitled "Black Barrels and more plastic – can radiant energy options further extend the growing season in High Tunnels?" This factsheet further details the relatively limited impact of enhancements. The project addresses an important and timely topic. The experience of UW Extension shows a strong interest in high tunnels (i.e. hoops houses), with interest often trending towards the production attributes of greenhouses, particularly near year-round production. This project was designed to address a reoccurring question of "What if I…" related to improvements to further extend the productions season. Existing applied research, especially in cold-climates, was not available to respond to producer inquiries.

PROJECT APPROACH

The project focused on using existing hoop house designs with enhancements suspected to increase performance (further extend the growing season) in low-cost greenhouses and based upon the limited available research of other institutions. The five hoop houses were

constructed with volunteer labor in May 2012 using the designs and approach developed by Jeff Edwards through a previous Specialty Crop grant. The materials cost per structure ranged from $1200 for the Original Design (Control) to nearly $1700 for the structure incorporating all the enhancements. Table 1 summarizes the costs.

Understanding Cost of Treatments					
TREATMENT	**OD[1]**	**2X[2]**	**IB[3]**	**BB[4]**	**ALL[5]**
Base Materials	$1,200.00	$1,200.00	$1,200.00	$1,200.00	$1,200.00
Second Skin		$110.00			$110.00
Insulated Barrier[6]			$217.00		$217.00
Barrels				$165.00	$165.00
TOTAL	**$1,200.00**	**$1,310.00**	**$1,417.00**	**$1,365.00**	**$1,692.00**
Cost per 'farmable' square foot[7,8]	$3.13	$3.41	$3.69	$4.21	$5.22

1 - OD, Original Design with single polyskin layer.
2 - 2X, Two polyskin layers.
3 - IB, Insulated Barrier.
4 - BB, Black Barrels.
5 - ALL, 2X polyskin, Insulated Barrier, & Black Barrels.
6 - Insulated barrier included $135.00 for materials and $82.00 for trencher rental (per each treatment).
7 - Farmable square feet of a High Tunnel is the total square footage of the base, 12 ft X 32 ft = 384 square ft per high tunnel.
8 - Farmable Square feet of HT's BB and ALL are reduced by 60 square feet due to footprint of barrels.

Table 1. Hoop house cost by design.

Volunteers also learned how to build the structures, furthering the educational value. The use of existing, easily replicable designs was encouraged to allow for broader adaptation if promising results were shown.

Once the hoop houses were constructed, ACRES students planted the hoop houses, with the goal of having similar production systems in each structure to reduce the introduction of additional independent variables (e.g. plant biomass and shading). Onset® HOBO® Pro v2 2X6-ft External Temperature (MN U23-003) Data loggers were used to collect the temperature data at each individual hoop house. These loggers utilize two, 6-ft leads. One lead was placed at a depth of 4-inches in the soil near the center of the inside of each structure and the other lead was placed 48-inches above the soil also near the center of the inside of each structure. Data were downloaded when possible and not without technical difficulties which included:

- The external (outside the hoop houses) soil and ambient air probe failed twice and data have been omitted.
- No data were recovered between mid-February to mid April 2013 or 2014 (temperature data collection will continue through 2015 in order to capture data from these dates).

Students were hired to maintain the high tunnels, aid in farming, and record the production. The information gathered from the data loggers was subject to analysis to determine if the temperature differences merit the added expense. The focus is on the period between the season-ending freeze in late autumn and last freeze of early spring. In addition, production data was partially recorded, although numerous issues emerged relative to ACRES production. The value of extension and outreach as emphasized throughout the project, with numerous tours of ACRES highlighting the high tunnels and their enhancements.

GOALS AND OUTCOMES ACHIEVED

Goal – The goal of the project is provide practical information to producers on cost effective heat sinks that may further extend the growing season of specialty crops in hoop houses.
Benchmark – According to available literature Hoop houses typically extend the production season by one month in the spring and one month in the fall (60 days).
Target – Extend the season by an additional month in the spring and fall (120 days). Provide the results of the project to fifty producers on the results of the techniques studied.
Outcome – The soil temperature data (Figure 1) do not show definitive differences between treatments for heat retention. What is observed is that Insulated Barriers (purple) and Black Barrels (green) allow the soil temperature to decrease more rapidly than the other treatments. The 2X cover (orange) and the single cover (blue) appear to maintain soil temperature longer. The 2X cover of the ALL treatment (grey) appears to negate the confounding effects of both the black barrels and the insulated barrier.
Based on temperature data alone, for the investment, a single woven poly cover is the most economical method in Wyoming to extend the growing season.

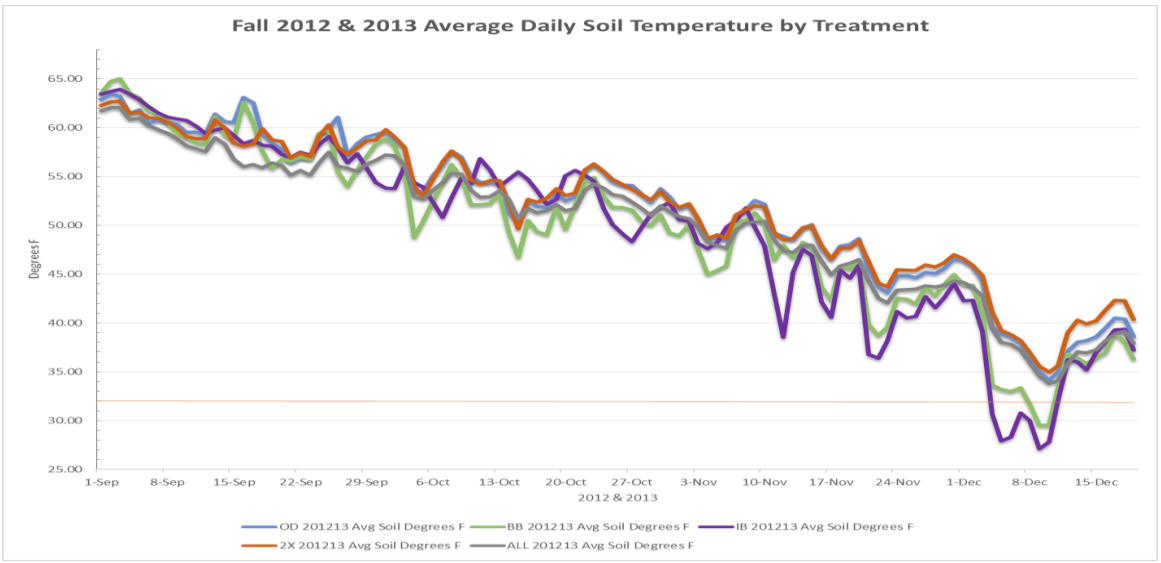

Figure 1. Average daily soil temperature (degrees F) by treatment.

All high tunnel designs are improvements from the external ambient air temperatures. Soil temperatures inside the structure remained above freezing (red horizontal line) and suggest that production could have continued into December.

Repeated failure in the external data logger led to the use of a nearby UW Agricultural Experiment Station (less than 2000-ft away) data logger to record outside ambient air temperature data.

The monitoring of production was difficult with the transient, intermittent nature of ACRES student labors. Harvest and planting dates were never coordinated due to labor constraints, and irrigation discrepancies more than likely influenced production. Funds were expended to better equalize irrigation levels and timing, but identical performance was never achieved. The results for production of tomatoes, peas & lettuce for the 2013 production year are shown in figures 2-4, respectively.

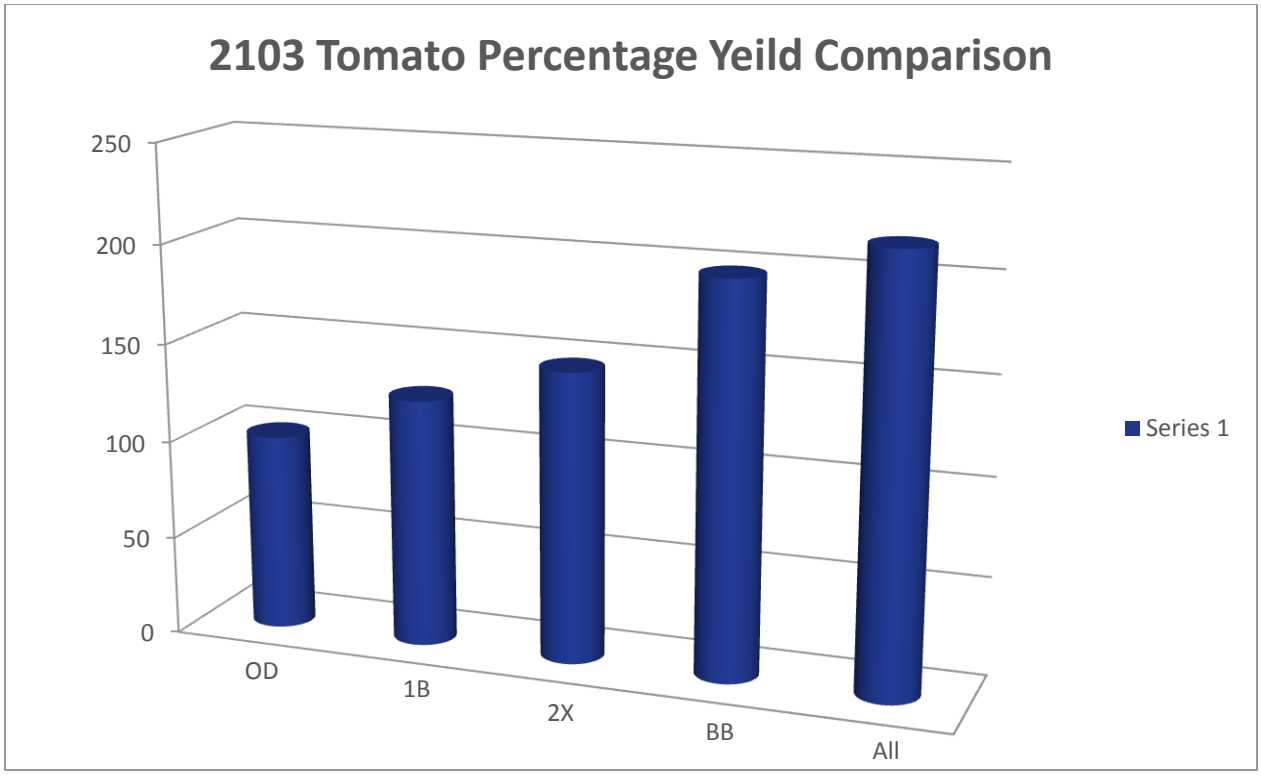

Figure 2. 2013 Total tomato percentage yield comparison

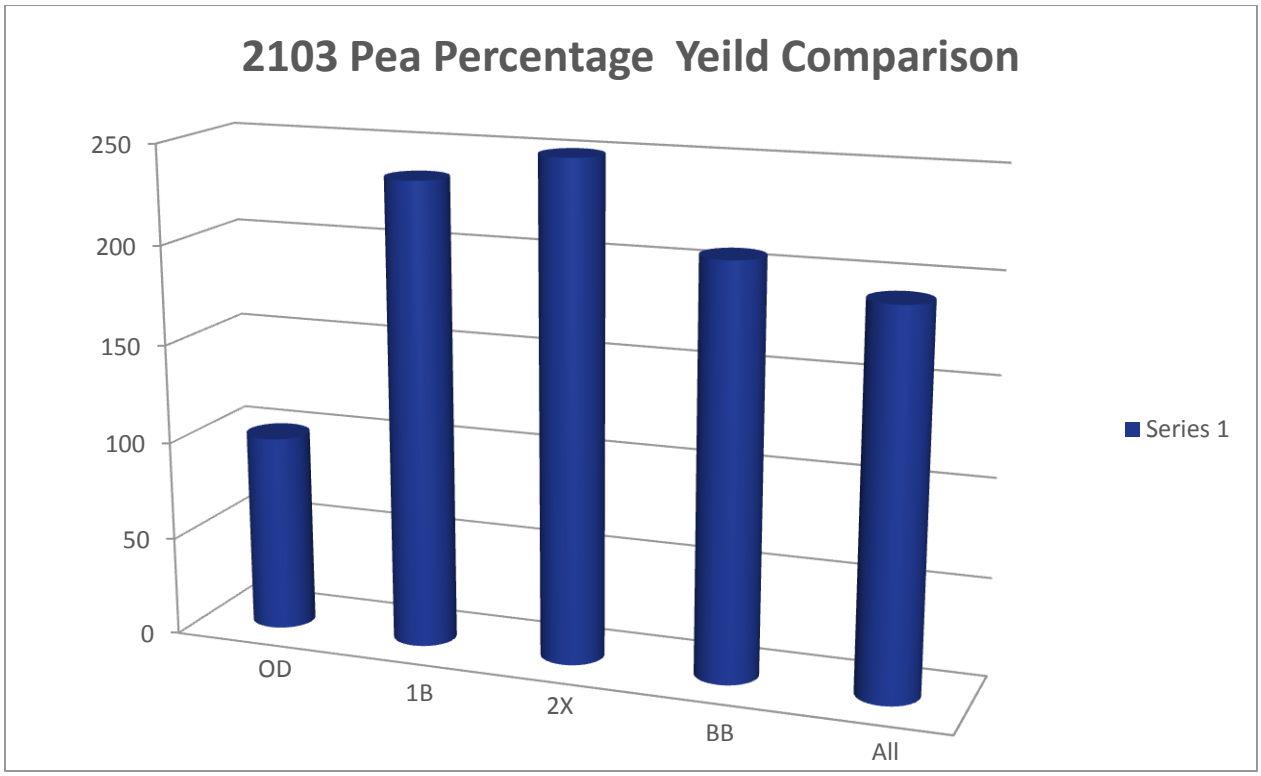

Figure 3. 2013 Pea Percentage Yield Comparison

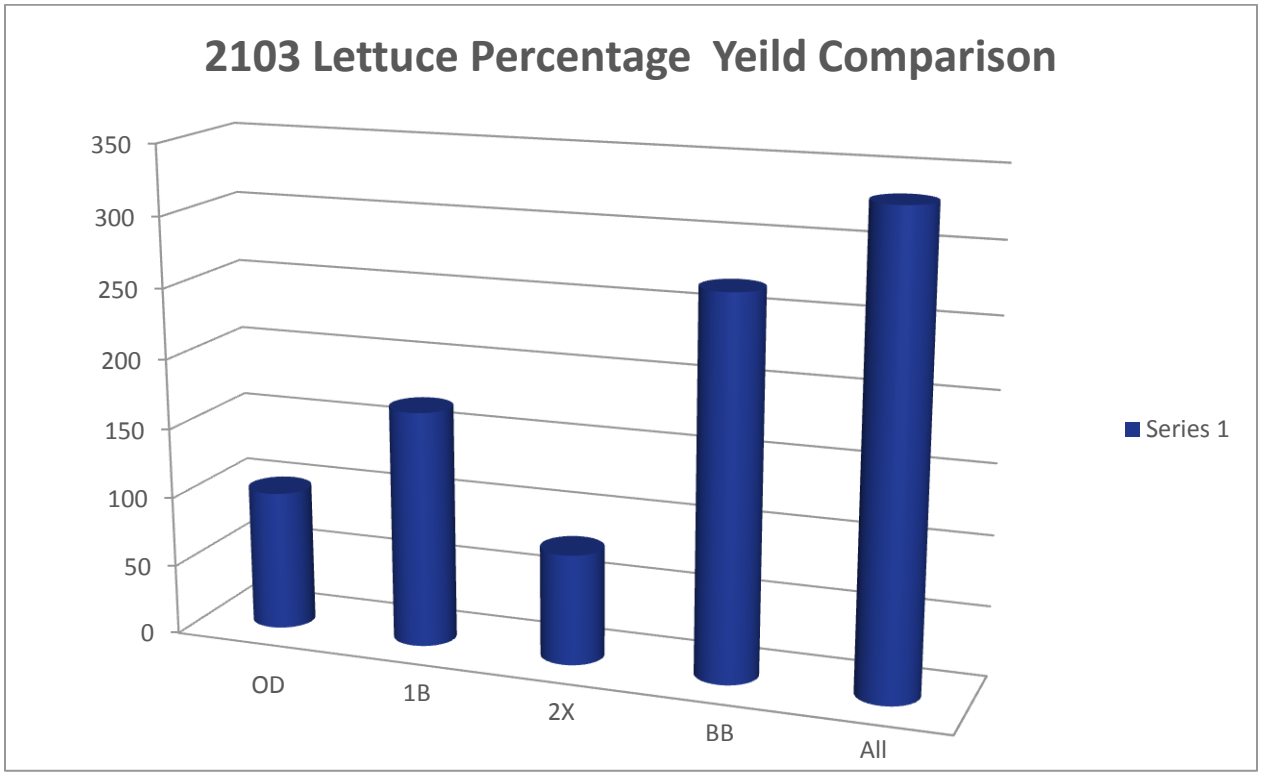

Figure 4. 2013 Percentage yield of lettuce.

These results suggest that the treatment ALL may have the ability to be more productive as there are greater yields for both tomatoes and lettuce in these treatments. Unfortunately, the known difference in irrigation water pressure indicated that the treatment "ALL" likely received more water. Thus no definitive determination on the impact upon yield can be made. Overall, the added cost of the enhancements does not appear to justify the increase in performance or speculative increase in production. The final fact sheet will advise that the transition from hoop house to greenhouse is a more relevant discussion than building enhanced hoop houses. Finally, the importance of air sealing for thermal retention will be proposed as an alternative – build air-tight hoop houses. This information was shared through publications, posters, and presentations targeting producers and agricultural professionals. The results over time were shared at the Extension Galaxy conference, 2013 Wyoming's Farmers Market Conference and ongoing ACRES farm tours. The following producers also received information on the project: Ag Diversification Tour when visiting SAREC (30), Casper Master Gardener presentation (9) and Season Extension Tour from Goshen County (21). An article on the results will also be published in the spring publication of Backyards and Barnyards with a circulation of over 3000.

BENEFICIARIES

The project offers ongoing benefits to numerous constituents:

- 30 ACRES student farm directly benefited from the expansion of their hoop house growing area. The high tunnel designs perform at a high level.
- The broader Laramie community enjoys produce from the hoop houses through a community supported agriculture share program and farmers market. In addition, greens from the high tunnel are sold at Big Hollow Food Cooperative, Inc.
- The 60 volunteers who contributed approximately 960 "man-hours" to the construction, received a valuable hands-on training in designing structures for specialty crop production.
- Wyoming producers have been exposed to the project through agricultural experiment station field days and the regular tours of ACRES.
- The National Extension community received information on the project and tentative outcomes at the 2013 Galaxy IV Conference.
- Wyoming producers receive the information through fact sheets and incorporation into the Wyoming Hoop House Information Network website.

In summary, the project is considered to be a highly successful demonstration, with regular production and public visibility. The outcomes of the project cannot definitively determine if the enhancements add the desired additional 60 days. The data indicates that although the average air and soil temperatures are elevated, a killing freeze would still occur during extreme

weather evens in the fall and spring. The added enhancements do not appear to mitigate the risk where an additional 60 days of growing season is likely over and above that gained by the control hoop house. This information was shared through publications, posters, and presentations targeting producers and agricultural professionals. For example, the data was shared at the Extension Galaxy conference in 2014, Wyoming's Farmers Market Conference, ACRES farm tours, UWE Factsheets, and through a lay publication in UW's Barnyards and Backyards magazine.

LESSONS LEARNED

The project was a successful demonstration of potential energy storage enhancements to hoop houses, although the final results imply a limited benefit to the enhancements in a production system. Several challenges and obstacles emerged during the project, including:

- Introduction of additional independent variables related to watering consistency, harvesting, and management based upon the site location;
- Data logger failures, with limited budget for redundancies.

These obstacles impacted the collection of some meaningful data and lead to the inability to make a specific determination on the practicality of energy enhancements to hoop houses. Thus, the project cannot verify that producers should, or should not, adopt the energy enhancements, although the utilization of a double-layered polyskin shell appears to present the most promise.

Most importantly, this applied research project allows a more apt reframing of the original research question. The important question, one that merits further research, is not if passive solar energy collection and retention improve high tunnel performance, but what are the production and cost tradeoffs between a high quality hoop house and a full greenhouse? The energy enhancements blur of the distinction between hoop house and greenhouse for producers seeking to increase production and mitigate risk. Overall, the project provided a useful demonstration of energy enhancements to high tunnels that are useful to others seeking to conduct applied research on high tunnel design.

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WYOMING BROWN AND GOLD CUT SUNFLOWERS

PROJECT SUMMARY

Local production of agricultural commodities is an important current topic, and this should include ornamentals as well as edible crops. Most greenhouse and high tunnels in Wyoming are currently used for growing edible crops with very few used for cut flower production for local sales. The purpose of this project was therefore to successfully grow fresh brown and gold cut sunflowers for local market and to make available to Wyoming growers the methods used. And, using brown and gold colors sunflowers may increase the attractiveness of the flowers for consumers and will increase the visibility of horticulture and specialty crops at the University of Wyoming.

This project stemmed from a pilot project started November 2010 and continued through spring 2011 with an undergraduate researcher. In the fall of 2010 the director of the University of Wyoming Agricultural Experiment Station asked Dr. Panter if brown and gold flowers could be produced for the annual banquet at the end of February 2011. These sunflowers were subsequently grown and utilized at the banquet. Next, the College of Agriculture and Natural Resources dean's office requested some be grown for the Dean's banquet in September 2011. Thus, the project already has administrative backing but in order to take it to the next level for statewide growers utilizing numerous different cultivars, additional research needed to occur.

The pilot study showed that when started from seeds, a cut sunflower can be harvested in 65 to 75 days, depending on cultivar and season. Stem lengths for two cultivars grown ranged from 45 to 55 cm ('Dafna') and 55 to 65 cm ('Sunbright Supreme'); longer stems are more desirable in the trade. And in order to determine which cultivars perform best under our conditions in high tunnels and greenhouses, several cultivars needed to be grown over an extended time period.

The first goal of this project was to successfully grow fresh brown and gold cut sunflowers in a greenhouse and high tunnels for local market. Another goal was to make available to growers in Wyoming the methods used to grow these flowers. A third goal was to build upon a pilot study conducted by the PI (Panter) from November 2010 through spring 2011 where fresh cut sunflowers were successfully grown continuously in a greenhouse.

PROJECT APPROACH

Greenhouse: Every two weeks from November 16, 2011 through December 12, 2012, seeds of three cultivars of cut sunflowers (*Helianthus annuus*) were sown for greenhouse production. The cultivars were 'Dafna', 'Pro Cut Bicolor', and 'Sunbright Supreme'. After 15 days, seedlings were transferred to 10 cm containers and grown in the greenhouse until harvest. The experimental plan was four replications of four plants each in a randomized design. Containers were placed on rolling mesh benches in section 49C of the Laramie Research & Extension Center greenhouse complex. Plants were spaced at about six inch spacing with an edge row of a different sunflower cultivar all the way around the bench as a buffer. Greenhouse temperatures were 70 F days and 60 F nights. All containers were watered by hand at least twice a day. Slow-release fertilizer was applied to each container about 10 days after transplanting and placement in the greenhouse. Harvest occurred when flowers were fully open. Data were collected on days to harvest, stem lengths, and whether or not the flower was of saleable quality. The last flower was harvested April 10, 2013.

High tunnels: Two high tunnels were used in this study, both 12x16 feet, one oriented north-south and the other east-west. (These tunnels were built using a previous Wyoming Department of Agriculture grant.) The first cut sunflower crop destined for the high tunnels was sown on May 3, 2012 and seedlings were transplanted into the tunnels on May 17, 2012. Two groups were planted in each high tunnel, one group on either side of the central aisle. Each group consisted of all three cultivars, with four replications of four plants each in a randomized design. An edge row of a different sunflower cultivar was planted all the way around each group as a buffer. Data collected included days to harvest, stem lengths, and whether or not the flower was of saleable quality. When all stems had been harvested, a second planting was done on August 9, 2012 and plants were transferred to each of the high tunnels on August 23, 2012. The first crop took longer to bloom than anticipated, thus delaying the start of the second crop. On the night of October 4, 2012, temperatures dipped into the mid-20s outdoors and the decline of the sunflowers ensued. As a result, no flowers were harvested from the second high tunnels crop.

Dissemination of information: On August 2, 2012, I gave a talk on the initial pilot project, which ended in 2011, and included some data and other information from the current project. The talk was given at the annual conference of the American Society for Horticultural Science held in Miami, Florida. Then on August, 30, 2012, the Laramie Research & Extension Center field day was held at our greenhouse complex. During the field day, Andrea showed participants the plants in the greenhouse and high tunnels and also demonstrated harvesting and data

collection procedures. A two-page summary of the current project was published in the UW Agricultural Experiment Station 2012 Field Days Bulletin (http://www.uwyo.edu/uwexpstn/_files/docs/2012-field-days-bulletin.pdf). Information on the current project was presented at a horticulture and high tunnel workshop held September 15, 2012 in Torrington.

Information was also shared in 2013. At the annual Rocky Mountain Green Industry Conference, hosted by the Wyoming Groundskeepers and Growers Association, I presented a talk on the project results. The talk took place February 14, 2013.

Andrea Garfinkel presented a poster on this project at the American Society for Horticultural Science annual conference in Palm Desert, California, on July 24, 2013. The poster abstract can be found at http://www.ashs.org/downloads/2013PosterPresentations.pdf on page 48, abstract number 65. She entered the poster in the Graduate Student Poster Contest, and although she was not a winner, the end result was further spreading the word about this project.

We also wrote an Extension bulletin on the project, intended for growers. The bulletin is complete and should be available in early March 2014. As soon as we receive notification of its posting on the UW Extension web site and Facebook page, we will send out announcements about its availability using Twitter, the email list-serve, Dr. Panter's blog and other internet-based media.

Twitter posts (@wyohort) about the project occurred in 2011 (November 1), 2012 (January 8, May 12, September 3, September 15), and 2013 (May 15).

Andrea successfully defended her master's thesis on this project on June 11, 2013. Her thesis has subsequently been published online at http://search.proquest.com.libproxy.uwyo.edu/docview/1442559136. The peer-review manuscript for publication in Hort-Technology is also finished and is in the process of being reviewed internally prior to submission. The publication is titled *High Tunnel Orientation and Growth of Wyoming-grown Fresh-cut Sunflowers* . An additional manuscript is also written, but has not yet been submitted for internal review: *Year-Round Greenhouse Production of Cut Sunflowers*

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GOALS AND OUTCOMES ACHIEVED

Our goals were all reached. We successfully grew fresh cut sunflowers in a greenhouse and had moderate success growing them in the high tunnels. We are making our results available to growers by publishing a University of Wyoming Extension bulletin on the subject. It has been peer-reviewed and should be published in early 2014. Lastly, we successfully built on the previous pilot study, which determined that fresh cut sunflowers could successfully be grown in the greenhouse.

Greenhouse: Days from sowing to harvest (Figure 1) varied by cultivar and time of year and were heavily influenced by natural light levels. 'Dafna' and 'Sunbright Supreme' showed very similar timing patterns, with longer times to harvest in the March through June sowing dates. 'ProCut Bicolor', however, displayed the opposite tendency, taking longer to reach harvestable stage in the August through March sowing dates. This illustrates why cultivar selection is so important.

Figure 1. **Days from sowing to harvest of greenhouse-grown fresh cut sunflowers by cultivar over a 14-month time period.**

Stem lengths followed roughly the same pattern as days to harvest, especially with ‘Dafna’ and ‘Sunbright Supreme’ (Figure 2). Stem lengths were longest in these two cultivars in the March through June sowing dates. ‘ProCut Bicolor’ showed dramatically different tendencies, with longest stem lengths in the August through March sowing dates. This again is a reason for careful cultivar selection.

Figure 2. Stem length of greenhouse-grown fresh cut sunflowers by cultivar over a 14-month period.

Percent saleable flowers in the greenhouse ranged from 80 to 100%, depending on cultivar and sowing date.

High tunnels: There were no differences between the high tunnels in days from sowing to harvest. There were differences among the three cultivars, however, (Figure 3). Both ‘Dafna’ and ‘Sunbright Supreme’ produced longer stems in the tunnels than ‘ProCut Bicolor’.

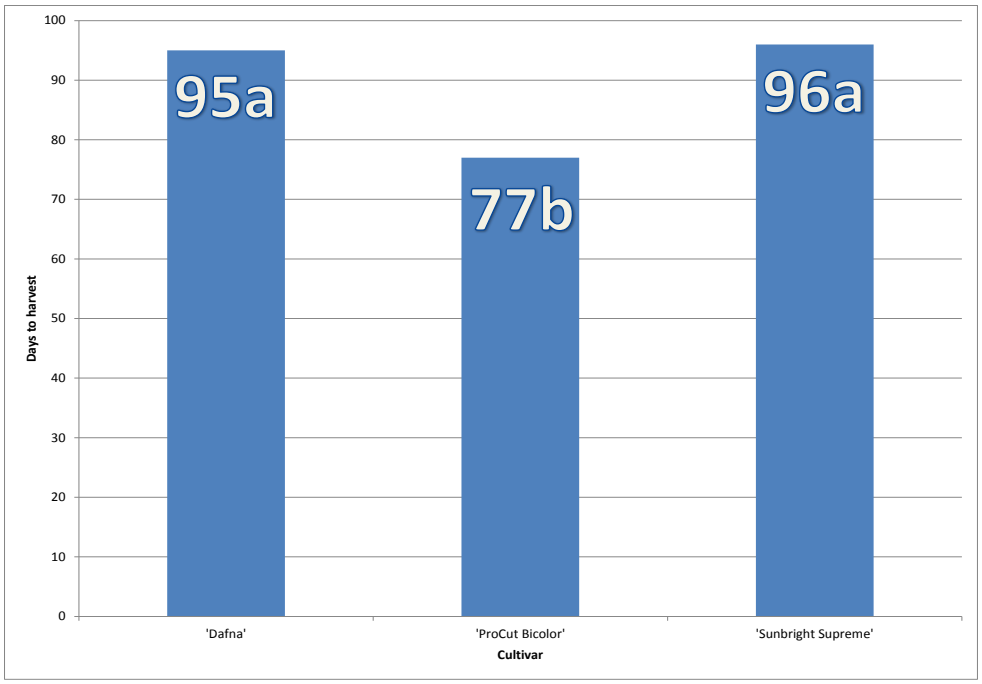

Figure 3. Mean days from sowing to harvest in high tunnels by cultivar.[z]

[z] Means followed by the same letter are not statistically different.

Stem lengths were different between the two tunnels (Figure 4). Stem lengths of 'Dafna' and 'ProCut Bicolor' were the same between the two tunnels but 'Sunbright Supreme' produced much longer stems in the north-south tunnel than the east-west tunnel. Reasons are not clear but perhaps the direct morning sun and evening sun were more beneficial to this cultivar than the other two.

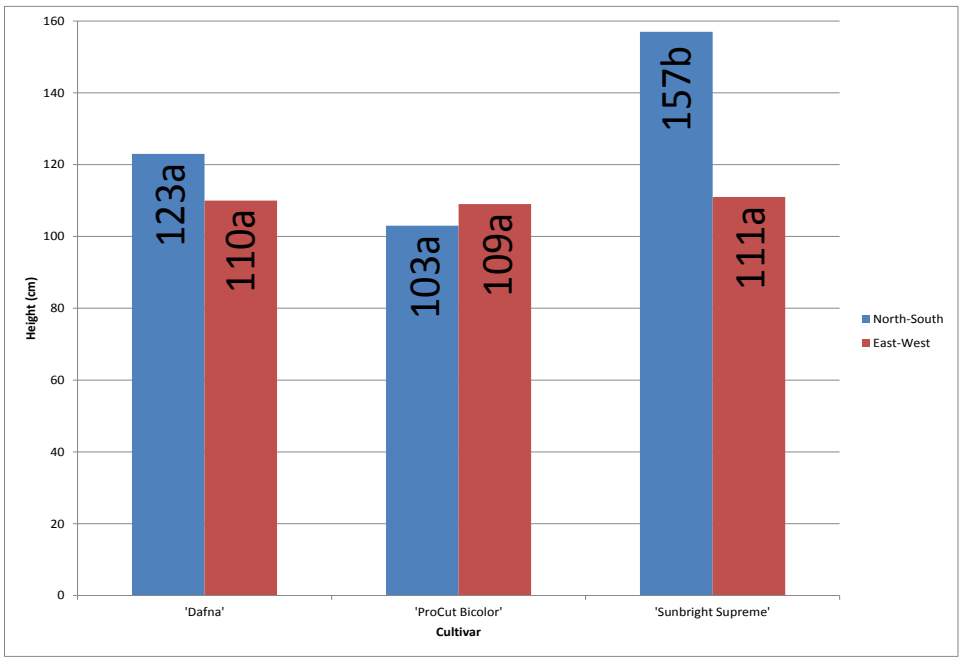

Figure 4. Comparisons of stem length by cultivar and high tunnel orientation'[s]

[z] Any means within a cultivar followed by the same letter are not statistically different.

Overall percent saleable flowers in the tunnels did not differ in days to harvest but there were differences between the three cultivars. 'ProCut Bicolor' produced 73% saleable flowers, while 'Sunbright Supreme' produced 34%, and 'Dafna' 31%. The reasons include temperature differences in the lower 3 feet of the tunnels, as the sides roll up to that level for ventilation on warm days. Flower heads above that height inside the tunnels were frequently distorted, presumably from inadequate ventilation and overheating.

BENEFICIARIES

Beneficiaries of this information include greenhouse crop producers and high tunnel crop producers in Wyoming and beyond. Many were participants in the Laramie R&E Center Field Day in August 2012, while others attended the Wyoming Groundskeepers and Growers Association's Rocky Mountain Green Industry conference in 2013. Now that the Extension bulletin is finished and due to be published momentarily, many other greenhouse and high tunnel crop producers across the country will have access to the information. Also, academicians, graduate students, and even undergraduate students at other colleges and universities across the country viewed the poster at the American Society for Horticultural Science conference in July 2013.

The number of beneficiaries includes attendees at the WGGA conference talk (22), a potential of 500 plus at the ASHS conference who had the opportunity to view the poster, 70 Twitter followers, plus many more yet to be counted who will read the Extension bulletin and the peer-reviewed paper. Total beneficiaries will easily exceed 1000, in Wyoming and beyond.

LESSONS LEARNED

Greenhouse: Sunflowers are susceptible to several insect and disease problems. Insect pests we encountered were mostly aphids, plus a few spider mites and thrips. To combat these problems, granular imidacloprid was applied to each container throughout the study. This is a systemic insecticide and worked well. The biggest disease problem was powdery mildew. Initially, various sprays of fungicides were applied, with varying degrees of success. The treatment that worked best was vaporized sulfur, which dramatically decreased powdery mildew problems.

In late September 2012 we had problems with mice munching on sunflower seedlings on the mist bench. Three crops were lost to the mice but had no further problems after an aggressive trapping strategy was initiated.

High tunnels: Sunflowers typically prefer warmer temperatures and as a result were not transplanted out in the high tunnels until mid-May when air temperatures were consistently above about 40 F. Many were not ready to harvest until mid-August, which was later than we expected. We went ahead and planted the second crop knowing that they probably would not have time to mature before frost. And of course, they did not. Interestingly, insect problems were very few on plants in the high tunnels. However, powdery mildew did appear late in the first crop and was also present on the second crop.

We elected not to sow successive crops at two-week intervals for the high tunnels because of space and logistics issues. It quickly became clear that, because of statistical reasons, it would not be possible to have a rotation of planting dates in the tunnels. Thus, we chose to do two sowing dates instead.

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GRANT TITLE: ENCOURAGING CHILDREN'S USE OF SPECIALTY FRUITS AND VEGETABLES – TOWN OF SARATOGA

PROJECT SUMMARY

Saratoga is in an area that receives an average of only 10 inches of rainfall and has an elevation of almost 7000 feet. The last few years a weekly Farmer's Market was started in Saratoga for the summer months, but the distance and unreliability of consumer numbers made the last two Colorado growers of vegetables and fruits to refuse to truck in their produce. The project was timely as the need to showcase a successful a community garden with specialty crops was needed to encourage our students and citizens to grow some of their own produce. The project specifically aimed to develop a local source of select specialty crops of fruits and vegetable in order to measure, and increase, their consumption in school children. This project impacted school children and young adults in Saratoga and Encampment. It helped provide a template for the production of specialty crops in the Platte Valley which includes Saratoga and Encampment. This area has extremely limited rainfall, poor soils and windy not ideal conditions for the production of many specialty crops.

PROJECT APROACH

There were three parts of this project. 1) Collecting survey data on schoolchildren relationships with fresh fruits and vegetables, 2) creating the garden, and 3) support of local production and use of specialty fruits and vegetables in our community.

Looking back we can roughly characterize the starting of a community garden from a rocky windswept hill to a finished looking spot with many more possibilities as 2012 – the year of the fence and bed building, 2013 - the year of wonderful bed plants filling rented by locals and educational beds for kids, and 2014 - the year of the greenhouse. We did not anticipate the time needed for expert volunteers with busy schedules to build the 100 by 125 foot fence required to keep our local deer out. The site is rocky, and amending all the soil would be too costly, so we also built teaching beds and beds that will be used annually by locals. Coupled with the extremely hot July which precluded planting our seedlings 2012 started slowly but steadily.

Then Saratoga Community Garden Board wrote a supplemental grant to the Storer Foundation for $5100 to match the Wyoming Department of Agriculture funds granted for a greenhouse, which was awarded in late June, 2013. The greenhouse was ordered and delivered in August, 2013. We decided; as the garden volunteers with construction expertise had entered the fall rush to winterize, hunt and put up firewood; to wait until spring to construct the greenhouse. The greenhouse purchased is an 18'W x 32'L Premium Solar Star Gothic Style Greenhouse with twin-wall polycarbonate siding, 3 - 12" circulation fans (but electric fans not solar as needed, see below), and double-door access on one end for ADA accessibility. The greenhouse will not only extend our growing season, but will also be a teaching area where people can start specialty plants from seeds and grow plants that wouldn't normally survive in the Wyoming climate from spring through fall.

The greenhouse was completed June 2014 too late to rent space on the tables. This season we are planting 20 + tomato plants of different harvesting times and size and using the greenhouse to encourage earlier and later ripe tomatoes. We will harvest tomatoes as needed with help

from the local Helping Hands group who will deliver them to our Food Bank. We will also plant summer squash outside for the Food Bank.

I. Specialty plants/educational beds

a. Permanent trees, bushes, strawberry beds, herbs and perennial beds

In May 2012 the local FFA kids and Garden Board members planted a range of specialty plants including herbs (basils), certain marigold strains and nasturtiums and other edible flowers, bok choy, tomatillos, many tomato varieties, and some ornamental and medicinal flowering plants at the high school greenhouse and their home indoor growing areas.

Also in 2012 the local NRCS donated apple trees, cherry trees, and plum trees. We purchased the raspberry bushes and a currant bush which were planted as soon as the fence was up, and a drip system devised to water them (as well as the hydrants for water and the tapping of the water line) donated by the Town of Saratoga. A rhubarb bed and 4 three tired strawberry beds were also planted. These trees and berries produce annual crops and will encourage bees and butterflies.

2013/2014 Update: trees, bushes, strawberries and rhubarb are all doing very well. The herb garden is becoming fuller with mature oregano, ground thyme, bush thyme and sage. We added lavender and edible chrysanthemums (used in sukiyaki) and a few nasturtiums. The perennial garden is becoming fuller and full of colorful flowers. The bulb alliums this spring were beautiful.

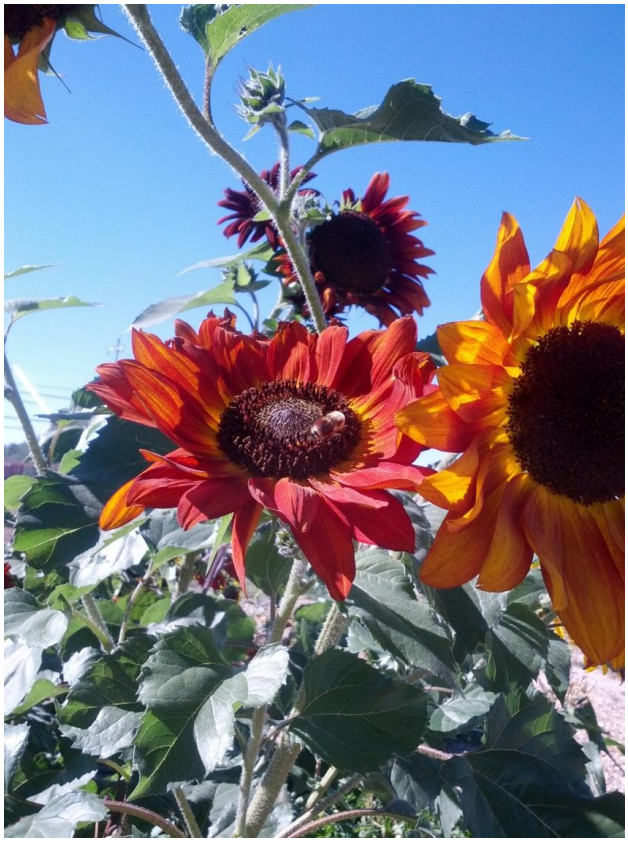
b. Annuals and perennials that attract bees and butterflies

Monardia (bee balm) planted in 2012 was especially prolific (the common fuchsia variety) sending out small plants in 2013 and again this year, and providing lots of flowers for the bees and butterflies. The less hardy Jacob Cline variety (red, 2013) may have survived but until it flowers I can't be sure it's not just advancing fuchsia monardia. An unusual lemon monardia seed pod was acquired at a seed exchange and has been planted but has not yet sprouted.

We grew Hopi Red Amaranth as a edible leaf that did very well in our very windy community garden. We showed it's use as leafy vegetable, and as a "cut flower" as their bracts are very beautiful. When using the plant as a teaching device we also spoke of its flowers as a honeybee, mason bee, moth and butterfly, and bird attractant. Similarly, we also grew quinoa and Kaniwa looking for an easy plant that is drought tolerant, and perhaps shorter than the amaranth. Its leaves proved to be tasty salad greens. The Kaniwa was much slower germinating and growing, but it's leaves were wider and nicer. All three, the amaranth, Kaniwa and quinoa had an additional unexpected attribute. They are very deeply rooted, and would be an excellent windbreak. They do self seed, which shows their high altitude tolerance.

Another huge bee attractor was the sunflowers. The squash blossoms brought a special visitor to the garden - a huge hummingbird moth.

c. Sunflowers



We had great success in 2013 with sunflowers of all kinds. Despite the first seeds being waylaid by pesky gophers and not understanding they required quite warm soil to germinate we had fully mature flowers before frost. We have planted many more this year. They attract many mason and honey bees as can be seen on the picture that follows.

d. Edamame soybeans.

"Edamame, or vegetable soybean, has a long history in many Asian cultures as a side dish or snack. Japan has been consuming edamame for over 400 years. National consumption in Japan has averaged 110,000 tonnes (t) annually. These vegetable soybeans are generally sold in the pod as fresh or frozen beans. Beans are harvested when bean pods are green and Brix readings (soluble solids) are generally between 8.5 and 12.0. For consumption, edamame is boiled for 5 to 7 minutes in highly salted water, drained and are served either hot or cold. Other vegetable soybean products are a shelled version of edamame called *mukimame* and a green bean paste, *zunda-mochi*." (sic) (from Johnson, D., S. Wang, and A. Suzuki. 1999. Edamame: A vegetable soybean for Colorado. p. 385–387. In: J. Janick (ed.), Perspectives on new crops and new uses. ASHS Press, Alexandria, VA.).

We had tried to get some of the varieties of soybeans tested in the above study at Colorado State University in their Edamame: A vegetable soybean for Colorado study, but could not buy them in less than 50 pound bags. We planted (twice as in sunflowers due to pesky gophers) in June of 2013 the strain Shirofumi Edamame soybeans from Seeds of Change, Rancho Dominquez, CA. The soybeans grew and matured well. The pods dried quickly if not picked when green and used as edamame. They were "irrigated" like some of the studied Colorado edamame. I think they would be a great specialty crop in this area.

e. Amaranth, quinoa and Kaniwa

Volunteer Hopi Red Amaranth spring 2014 Mature Hopi Red Amaranth September 2013

One of the most exciting and successful specialty crops was the planting and production of Hopi Red Dye amaranth (*Amaranthus cruentus x A.powelli).* This versatile amaranth is also prized for its tender baby leaves of bright fuscia pink to accent fresh salads. The plant matured with deep red leaves and stunning bract flowers seen above, and yielded many cups of black seeds for replanting. The Hopis use the deep-red flower as a natural dye. We haven't tried that yet. The plant self-seeded and above left you can see volunteer plants.

Based on the good growth last year we looked for available seeds to plant within the same Family Amaranthaceae. This spring 2014 we have planted quinoa for use as a salad green from the related Genus Chenopodium quinoa, two strains called "quinoa 407" and "quinoa colorado". And a strain called Poinsettia mix amaranth which is less easy to grow but reaches 2 feet. Finally the closely related Kañiwa (Chenopodium pallidicaule from Peru. The Chenopodium spp. are of minor to moderate importance as leafy vegetable food crops (used like spinach). This family is related to spinach and beets. The native Americans use Chenopodium berlandieri (pitseed goosefoot) which grows 2-3 feet high and in low nitrogen soils is not colored (prolific all over the western mountains). The Family Amaranthaceae are also used for a variety of medicinal purposes as are the amaranth called cockscomb and the species we grew above (Medicinal Plants of the Mountain West, Michael Moore, Museum of New Mexico Press, 2003, p. 26).

Possible problems are cross fertilization. Despite reading information from several seed saver sites, I am still not sure how sensitive they are to cross fertilization between the amaranths, quinoa and Kaniwa species (not to mention the native pitseed goosefoot (C. berlendieri); or the transferred goosefoot from Europe C. albus). Perhaps we will need to talk to "weed" experts to make sure our amaranthaea do not spread about. I have no idea what animal species can safely eat them.

II. Educational opportunities

a. HUB and summer school beds

The FFA students mentioned above worked to help plant our seedlings and housed them in the high school greenhouse in 2012. Children from an afternoon school program (the Hub, a Big Brother-Big Sister organization) planted 2 beds with kale, peas, and lettuces in 2012. When ripe they picked their plants, and some of the other specialty crops and they consumed them happily. Because kale is so nutrient rich we supplied extra kale to the HUB teachers (specifically Ed Kennady) and they made a large batch, and somewhat enjoyed, kale chips (dried kale with a tiny touch of salt and oil). The HUB enjoyed gardening so much they started their own garden at the back of their building.

In 2013 we got many plants from the FFA students and a group of summer school children were given a bed to use and a wild variety of small tomato plants, some petunias and corn and squash seeds. My favorite bed was the one planted by the students in the summer school program in 2013. Given a mélange of FFA leftover plants and some seeds they grew the wildest most prolific bed in the garden last year. The final pre-freeze fall harvest of just the tomatoes from their bed was 49 lbs. 8 oz. The community beds dedicated to tomatoes and squash yielded 58 lbs. 8.5 oz. They had ripe corn too! We think it got the most love. The summer school students have planted their bed this June 2014. They had some volunteer sunflowers they were excited to see, and carefully moved them.

b. Arbor Day

Annually, the Town of Saratoga holds an Arbor Day Celebration that is centered on educating Kindergarten through 6th grade children. In 2012 the Community Garden was a part of the celebration. We brought in Trish Penny, NRCS-CD from Laramie to do a Square-foot Gardening presentation. She brought a 4'x8' raised garden bed on a trailer and showed the kids how you can get more plants in a small growing area. She shared with them what companion plants are and how they can help the health of a garden. She also shared with them how square-foot gardening uses more plants in a small area which promotes moister soil because of the ground cover, and also promotes less weeds because of the layout of the plants. There were 150 kids that attended the presentations. Each child took home a pack of peas with square-foot gardening instructions and were encouraged to start their own little garden at home.
In 2013 students planted twenty 1 foot common junipers (Juniperis communis) outside the fence on the south and west sides of the garden for curb appeal and windbreak. They are growing well, with small windbreaks to the west and the drip system, watering 3X a week.

c. Teton Science Camp

In June, 2012 56 local elementary children in the morning and 30 children in the afternoon took part in the Teton Science Camp in Saratoga. One day was spent at the Community Garden. While at the garden they helped plant our strawberry plants and peas. We discussed the different plants we had in the garden and how they related to different nationalities and their cooking and eating habits. We focused on tomatillos, eggplant and bok choy as specialty plants that can be grown in our town. Also while at the garden, they painted on various rocks to be added to the garden. They spent some of their time picking the many rocks in the garden area and piling them up. Surprisingly, the rock picking was done with much enthusiasm.

GOALS AND OUTCOMES

Goal: To introduce or encourage the growing and eating of several specialty crop fruits and vegetables in school children in the Platte Valley.
Benchmark: No community garden exists. We will examine available surveys suitable for a range of ages, and collect data on a cross section of the school children (or perhaps all students in several grades, to reach a large enough sample size, say 100, for reasonable analysis
Target: To increase by 50% consumption and/or awareness of local food production and/or understanding of plant agronomy.
Performance Measure Provide data similar to the Healthy Eating Index available for Carbon County students. Our cross sectional and longitudinal survey will provide data useful to understanding gaps in nutrition, and the impact, if any, of the student's interaction with locally grown specialty fruits and vegetables. We will also measure the volume and weight per plant of the specialty fruits and vegetables produced data not available in our area, which might help a commercial enterprise evaluate production in the Platte Valley. We believe the harvest days and cooking demonstrations will also provide a place of community for schoolchildren and

adults to interact in a constructive manner. The very presence of bees and butterflies on beneficial plants and the warm positive greenhouse area provide intangible benefits for young and old.

2014 Update: The goal of increasing consumption of locally grown food and vegetables and fruits in school children by 50% has not been measured as proposed. With a three year gap between survey and working community garden and greenhouse, a second repeat survey for longitudinal data would have populations too different to compare. I believe a longitudinal study with a shorter survey would be useful in the future.

I. Cross-sectional survey completed and some analysis

Materials and Methods

Ninety-seven students from the Saratoga filled out surveys in grades 7 through 12 (aged 12 through 17), with four younger children in grade school read the surveys with their answers noted (by volunteers at The Hub after school program). Eighty surveys were analyzed as some were unfinished or not taken seriously (all "a" s chosen for example). Data entry for analysis was time consuming due to the long survey.

Results

a. Population surveyed

The majority of the 80 students were in 7^{th} to 12^{th} grades aged 12 to 17. Eight were in grades 1 or 3 ages 7 to 9 who received help in filling out their surveys. There were 41 boys and 39 girls. They self-described their ethnicity as 59 white (74%), 1 Black or Afro-American (1.25%), 10 Hispanic or Latino (12.5%), 3 Asian or Pacific Islander (3.75%), 5 American Indian or Alaskan Native (6.25%), and 3 as Other (3.75%).

b. Prevalence of a more or less healthy behavior

Healthy Activities or Thoughts	No	Sometimes	Yes
Reads nutritional labels	19%	53%	28%
Exercised day of survey	25%	0	75%
Eats whole wheat products	11%	47%	42%
"I believe" I eat and drink healthy food	6%	78%	15%
Eats high fiber cereal	16%	72%	12%

The students are clearly aware that reading nutrition labels, and eating whole wheat and high fiber cereal are good practices. Most of them believe they are eating and drinking healthy foods. Most of them (3 out of 4) exercised the day before they filled out the survey. The actual question was "Yesterday, did you exercise or participate in sports activities that made your heart beat fast and made you breathe hard for at least 20 minutes?" The mean age of the 25% who did not exercise was 14.06 (median 15), and the mean age of the 75% who did exercise was 14.78 (median 14), so the difference was not age based.

c. Number of different food stuffs reported as eaten

	No	Yes, 1X	Yes, 2X	Yes, 3X	
Did you eat vegetables yesterday?	13%	40%	31%	16%	
	No	Sometimes	Yes		
Did you eat vegetables at dinner?	7%	42%	51%		
	Don't Know	At least 2	At least 5	At least 9	At least 10
How many Fruits &Vegetables SHOULD you eat?	19%	14%	9%	30%	28%

Earlier in the study vegetables were defined as salads, boiled, baked and mashed potatoes, and all cooked and uncooked vegetables …corn, broccoli, lettuce, snow peas etc…..Many said they ate vegetables and fruits but few knew how many they should eat, although 30% plus 28% (58%) knew it should be a lot (9 or 10 servings a day).

Fruit and Fruit Juice	None	1x a day	2x a day	3x or more/day
Yesterday, Did you eat fruit?	18%	22%	43%	17%
Drink 100% fruit juice?	43%	26%	18%	14%
	No	Sometimes	Almost Always	
Drink 100% fruit juice?	6%	63%	31%	
Do you eat fruit for lunch?	9%	62%	29%	

The survey covered fruit juice and fruit eating in two places. In both, the students reported low use of 100% fruit juice. In "Yesterday, did you eat fruit?" 82% reported they ate fruit more than once a day. In "Did you eat fruit for lunch" 91% reported sometimes (62%) or almost always (29%).

d. Experience planting fruits or vegetables in 2012

Planting fruits and vegetables	Yes	Sometimes	No
Have YOU planted vegetables outside in WY?	53%	15%	32%
Has family planted vegetables outside in WY?	49%	23%	28%
Has family planted fruits outside in WY?	56%	20%	24%

Have you planted vegetables in a green- or hoop house?	73%	9%	18%
Have you planted vegetables in a community garden?	1%	10%	88%

In 2012 only one child had planted in a community garden. Now we have dozens that have through their school and after school programs, Teton science camp and with their families.

BENEFICIARIES

Many people have benefited from the Town of Saratoga Community Garden Specialty Crop Program, and have a wide range of connections to the Community Garden. Local high school student Hunter Mason used his volunteer time building garden beds as part of his application, and was awarded a Bronze Wyoming Congressional Award. The Hub - a Big Brother/Big Sister organization – was offered a bed 2 years ago and were successful in growing produce, they now have their own "community" Hub Garden at their facility downtown. The FFA students at the high school helped us by planting seedlings in the high school greenhouse, before the greenhouse was up and usable, and planting NRCS donated junipers. The Teton Science Camp visited several times and their many students enjoyed helping weed, picking strawberries, and moving and painting rocks. Every summer the middle school summer school program is given a bed to clean up, plant, water and harvest. They learn about growing vegetables: tomatoes, beans, some corn, spinach, radishes, etc. and enjoy the walk from school and the fresh air. They also picked raspberries, strawberries and saw our rhubarb patch and plum and apple trees grow and thrive. To date 14 individuals and/or families have rented beds and produced flowers and a variety of herbs and vegetables. The 3 "teaching beds", one of herbs and quite different plants have been grow such as edible chrysanthemums, a second bed has been full some years with extra tomatoes and squash and a third bed has grown edamame, quinoas and the amaranth families as they are drought and wind tolerant leafy greens and and sunflowers. Almost 100 students took part in a local survey we developed described below. Citizens in the Town of Saratoga can see our perennial beds, have commented on the Hopi Red Amaranth flowers and sunflowers, and joined us for a Fall BBQ for town employees and others that volunteered over the years. There was great food from our own community garden, scalloped potatoes, rhubarb pies, squash in many forms, tomatoes, pickled Swiss chard stems, pickled beets, etc.

LESSONS LEARNED

As discussed above we did not anticipate the number of expert volunteer hours needed to start a large Community Garden from scratch including a deer-proof fence, construction and filling of raised beds and construction of the greenhouse. Nor how busy the expert volunteers we needed were. And despite the long development stage from 2012-2014 we had a large number

of children and young adults involved in the survey, planting, harvesting and various education programs. Some matters which still need to be worked out for the greenhouse are as follows**:** There are no utility hookups at the site at this time. The Saratoga Community Garden Board has no current source of income to pay for utility bills. The original greenhouse was to include a heater. This heater would not be able to run unless electric and gas were installed at the site. The estimated cost at running these utilities to the site was over $2500. Another option that was discussed is to look into Alternate Energy (solar, wind) to run the circulation fans in the greenhouse.

We were excited when The Town of Saratoga contributed workers to finish the erection of the greenhouse after our volunteers leveled the ground and raised the metal frame. A shot of the completed greenhouse is below. The combined effort was incredible. Unfortunately our hope that the greenhouse be usable was not true without fans, as it overheats easily. The Town decided to purchase heat sensitive vents which are not adequate to regulate temperatures on windless hot days. Fortunately we had just enough grant funds to also order solar powered fans and we are hopeful this will alleviate this year's extreme hot and cold days.

We are recommitted to finding a source of alternative energy to the greenhouse through grants this next winter to light and heat and cool the structure from March to November. Some of us grew up on summer mountain ranches off the grid and have some understanding of what this

entails (using solar and/or wind, storage and a small back-up generator). We think this would also be instructive for our "town kids." We are also fortunate to have a new member on our garden board who has 20 years of experience growing many plants in a greenhouse. He will manage the greenhouse we hope! My experience was with hoop houses which are found in Saratoga but they do not hold the heat like this greenhouse. Above a group is putting together the ten 4' by 8' wire tables with safe metal edges which we will place on donated concrete blocks and rent half spaces (4' X 4') to 20 people next spring. After the fans came we brought the potted tomatoes inside for a wind-free place to hopefully grow many tomatoes for the local food bank. There is also an outside bed with a dozen tomatoes.

The following questions ask about foods and meals you eat, and what you know about nutrition. <u>This is not a test</u>. We want to learn about what kids your age eat and know about nutrition.

1. What grade are you in? _____
2. How old are you? _____ years old
3. Are you a boy or a girl?

Boy _____
Girl _____

4. How do you describe yourself?

White _____
Black or African American _____
Hispanic or Latino _____
Asian or Pacific Islander _____
American Indian or Alaskan Native _____
Other _____

INSTRUCTIONS: Please CIRCLE your answer.

5. Yesterday, did you eat French fries or chips?

Chips are potato chips, tortilla chips, cheetos, corn chips, or other snack chips.

a. No, I didn't eat any French fries or chips yesterday.
b. Yes, I ate French fries or chips 1 time yesterday.
c. Yes, I ate French fries or chips 2 times yesterday.

d. Yes, I ate French fries or chips 3 or more times yesterday.

6. Yesterday, did you eat any vegetables?

Vegetables are salads; boiled, baked and mashed potatoes; and all cooked and uncooked vegetables. ….Corn, Carrot, Potato with butter, Broccoli, Lettuce, Potatoes, Snow Peas, Egg Plant, Beets, Avocado, Tomato, Green Pepper, Onions etc.

Do not count French fries or chips.

a. No, I didn't eat any vegetables yesterday.

b. Yes, I ate vegetables 1 time yesterday.

c. Yes, I ate vegetables 2 times yesterday.

d. Yes, I ate vegetables 3 or more times yesterday.

7. Yesterday, did you eat beans such as pinto beans, baked beans, kidney beans, refried beans, or pork and beans? Do not count green beans.

a. No, I didn't eat any beans yesterday.

b. Yes, I ate beans 1 time yesterday.

c. Yes, I ate beans 2 times yesterday.

d. Yes, I ate beans 3 or more times yesterday.

8. Yesterday, did you eat fruit?

Do not count fruit juice. Fruits are strawberries, pineapple, watermelon, pear, grapes, peach, lemons, kiwi, oranges, apple, bananas, cherries, fresh, canned or frozen.

a. No, I didn't eat any fruit yesterday.

b. Yes, I ate fruit 1 time yesterday.

c. Yes, I ate fruit 2 times yesterday.

d. Yes, I ate fruit 3 or more times yesterday.

9. Yesterday, did you drink fruit juice?

Fruit juice is a drink, which is 100% juice, like orange juice, apple juice, or grape juice.
Do not count punch, kool-aid, sports drinks, and other fruit-flavored drinks.

a. No, I didn't drink any fruit juice yesterday.

b. Yes, I drank fruit juice 1 time yesterday.

c. Yes, I drank fruit juice 2 times yesterday.

d. Yes, I drank fruit juice 3 or more times yesterday.

10. Yesterday, did you eat sweet rolls, doughnuts, cookies, brownies, pies, or cake?

a. No, I didn't eat any of the foods listed above yesterday.

b. Yes, I ate one of these foods 1 time yesterday.

c. Yes, I ate one of these foods 2 times yesterday.

d. Yes, I ate one of these foods 3 or more times yesterday.

11. Yesterday, did you exercise or participate in sports activities that made your heart beat fast and made you breathe hard for at least 20 minutes. (For example: basketball, jogging, skating, fast dancing, swimming laps, tennis, fast bicycling, or aerobics)?.

a. YES

b. NO

12. Do you ever read the nutrition labels on food packages?

a. Yes

b. Sometimes

c. No

13. Have you ever planted vegetables outside in Wyoming?

a. Yes, many times

b. Yes, once.

c. No, never.

d. I don't know.

14. Have any one in your family ever planted vegetables outside?

a. Yes, many times

b. Yes, once.

c. No, never.

d. I don't know.

15. Have you or your family ever planted fruit plants or bushes or fruit trees outside?

a. Yes, many times

b. Yes, once.

c. No, never.

d. I don't know.

16. Have you ever planted vegetables in a community garden?

a. Yes, many times

b. Yes, once.

c. No, never.

d. I don't know.

17. Have you ever planted vegetables in a green house or hoop house?

a. Yes, many times

b. Yes, once.

c. No, never.

d. I don't know.

18. How many total servings of fruits and vegetables should you eat each day?

a. At least 2

b. At least 5

c. At least 9

d. At least 10

e. I don't know

19. The foods that I eat and drink now are healthy.

a. Yes, all of the time
b. Yes, sometimes
c. No

20. Do you ever eat high fiber cereal?

a. Almost always or always
b. Sometimes
c. Almost never or never

21. Do you ever eat whole wheat bread?

a. Almost always or always
b. Sometimes
c. Almost never or never

22. Do you ever drink 100% fruit juice?

a. Almost always or always
b. Sometimes
c. Almost never or never

23. Do you ever eat fruit for lunch?

a. Almost always or always
b. Sometimes
c. Almost never or never

24. Do you ever eat vegetables (not French fries) for dinner?

a. Almost always or always
b. Sometimes
c. Almost never or never

INSTRUCTIONS: Please CIRCLE one of the two foods that you would pick if you had to choose just one.

25. Which food would you eat for a snack?

a. candy bar
b. fresh fruit

26. Which would you do if you were going to eat a piece of chicken?

a. leave on the skin
b. take off the skin and not eat the skin

27. Which would you choose to cook if you were going to help make dinner at home?

a. French fries
b. baked potato

28. Which would you do if you were going to eat cooked vegetables?

a. eat without butter
b. add butter

29. Which would you order if you were going to eat at a fast food restaurant?

a. a regular hamburger

b. a grilled chicken sandwich

INSTRUCTIONS: Please CIRCLE ONE of the two foods that you think is better for your health.

30. a. whole wheat bread
    b. white bread
31. a. broiled beef
    b. broiled fish
32. a. cereal
    b. eggs and bacon
33. a. beef
    b. beans
34. a. chicken
    b. regular hamburger
35. a. regular milk
    b. low fat or skim milk
36. a. frozen yogurt
    b. ice cream
37. a. green salad
    b. French fries
38. a. French fries
    b. baked potato
39. a. 100% fruit juice
    b. fruit punch
40. a. canned vegetables
    b. fresh vegetables
41. a. canned vegetables
    b. frozen vegetables

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WY STATE FAIR SHARED USE TEST KITCHEN INCUBATOR-WYOMING STATE FAIR

PROJECT SUMMARY

The purpose of this project was to provide an opportunity for local specialty crop producers to expand their operations by preserving their harvest and creating value added products. The upgrade of the processing and packaging equipment at the State Fair facility is meant to provide a shared use commercial kitchen for startup businesses and previously existing small scale specialty crop producers. These specialty crop producers and processors want do business in a much more cost effective manner because they do not have to bear the burden of acquiring the capital, equipment, and approval that are necessary to start a commercial kitchen. This is a practical solution for specialty crop producers who may only need a few hours of kitchen time each month or small scale specialty crop processors who are ready to handle additional volume. Furthermore, the facility provides opportunities for classes and seminars on preserving the specialty crop harvest and help to reduce wasted downtime in a predominantly vacant secondary kitchen on the State Fair grounds. The ultimate goal was to provide a complete facility for the production and packaging of market ready specialty crop foods at a very affordable rate. A Shared Use Kitchen benefits the local economy through supporting the development of small value added specialty crop food businesses. The State Fair ground also has a primary kitchen that is much larger that is used during fair time and for other special events. It has a larger selection of equipment including grills, deep fryers and baking ovens and is used for catering events that require equipment suitable for cooking full meals and baking. The purpose of the shared use kitchen is to have available equipment that is geared toward the production of jams, jellies, salsa's etc that will also have packaging opportunities.

PROJECT APPROACH

An Advisory Committee was formed. The local Converse County Economic Development Organization was approached and will work with specialty crop shared use kitchen clients in order facilitate use when ready. . These capital costs were paid for by FAIR for stripping and refinishing the interior walls in order to bring it up to code for commercial kitchen requirements as required by the State of Wyoming. No specialty crop funds were used for this part of the project.

Consulted kitchen experts as to equipment options best suited to small Specialty crop production.

State Fair maintenance provided labor for removal of existing dated equipment.

Necessary supplies to equip the facility to prepare and package specialty crop products were purchased.
After researching other incubators the necessary rules, regulations, performance monitoring, marketing, and food safety issues for the shared use kitchen facility were developed.
A series of 4 canning workshops were held for interested producers and consumers by UWYO Cooperative Extension in 2014. These were marketed through a newsletter, County Extension website and radio.

GOALS AND OUTCOMES ACHIEVED

Goal 1 - To increase the number of value added specialty crop producers who are able to sell wholesale by using the licensed and inspected shared use kitchen facility.
Benchmark - No preserved specialty crop products are presently being produced in Douglas that can be sold wholesale. However, approximately six (6) specialty crop related value-added products that are made at home are sold at the local farmer's market, up from one (1) five years ago.
Target - The first year of operation, 5 - 10 preserved specialty crop products will be able to be sold to restaurants and grocery stores as well as at the farmers' market through use of the Shared Use Kitchen.
Outcome: This goal had not been accomplished as all the equipment purchased was not installed on time. One outreach client has been helped with short run labels for testing of new products.
Goal 2 -Increase the knowledge and skills of local specialty crop growers and local residents on safe, healthy, and efficient preservation practices for specialty crops.
Benchmark - No seminars are presently being done at the fair grounds on safely preserving the harvest.
Target -There will be seminars twice per year, during fair time and at fall harvest time.
Outcome- In the fall of 2014 UWYO Cooperative Extension marketed and offered a series of four canning classes at the kitchen on specialty crop products. Eight individuals signed up for the series which included safe food preservation, freeze drying, water bath canning, preservation of jams and jellies, and pressure canning. Cooperative Extension will be offering a second series of canning classes in August of 2015. Two additional Wyoming acidified food workshops to provide food safety training by FDA approved processing authority trainer are scheduled in April and the kitchen will be marketed to the attendees.

BENEFICIARIES

To date one company has benefited and an additional eight individuals who received training on canning have benefited from the project. These included individuals who were interested in

safely preparing specialty crop jams, jellies, pickles, salsas, etc. An additional specialty crop company has expressed interest in using the kitchen and another has requested help with labeling their products. Converse Area New Development Organization will be offering a one day workshop this spring for specialty crop producers on business planning, marketing, funding opportunities and the production of safe food through use of the Fort Casper Kitchen.

LESSONS LEARNED

The celebration of the 100th year of the Wyoming State Fair delayed the work on upgrading the Fort Casper kitchen. The massive amount of workload required to prepare for the centennial celebration overwhelmed the state fair personnel and progress on the kitchen suffered. Coupled with that was the oil drilling boom and an oil pipeline project that caused a severe shortage of skilled labor as carpenters, plumbers and electricians went to work in the oil patch near Douglas. They were able to double the money they were earning. A Hampton hotel which began under construction over a year ago has sat unfinished due to lack of skilled workers. It is extremely difficult to find skilled tradesman in this area. We also ran into delays with plan approval from the fire marshal.

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HIGH TUNNEL CONSTRUCTION AND USE FOR SPECIALTY FOOD PRODUCTION

PROJECT SUMMARY

This grant allowed for the implementation of hands-on educational workshops for Wyoming residents for the construction of high tunnels. These workshops were able to remove factors that are intimidating in the construction process, encouraged the use of local materials and utilized simple yet sturdy designs that would survive Wyoming's challenging weather conditions. Specialty crop production in Wyoming is challenging due to a variety of weather

related conditions. High tunnels provide necessary protection and season extension to have a significant impact on production – developments concerning the material coving them have added to the structural integrity and increased structural longevity in Wyoming.

PROJECT APPROACH

A request for application (RFP) was developed and released for statewide distribution. Eight applications were submitted. Selection criteria were based on which build sites and workshops could reach the greatest number of individuals by evaluating the following information provided in the application - public verses private, location, project ownership, & production history. Project owners were notified that their location had been selected for a workshop. Promotional brochures were developed for each location. Project owners organized workshop participants. Materials were transported to workshop locations. The high tunnel structures were built by educational workshop participants in a hands-on "learn by doing environment".

GOALS AND OUTCOMES ACHIEVED

Goal: 80 producers to participate in educational workshops and construct 4 high tunnels. Producers will have the opportunity to gain knowledge in specialty crop production and pest management during the construction process.

Outcomes:

- Over the grant period, the project outcomes exceeded the original goal. 152 individuals participated in 8 educational workshops in 8 different counties of Wyoming where a total of 8 high tunnels were constructed. Structures built relied on 1501 volunteer "man hours" which equates to $28,353 worth of volunteer time. (Table 1). The remainder of the grant funding was used for instructor travel and tool replacement.
- A total of 3,120 (7% of an acre) "farmable square feet" were covered and placed into specialty crop production by this project.

- Survey Data – a High Tunnel user survey was developed and deployed Q2 2014 (attached). The return response rate was poor (12%). The intent of the survey was to capture the perceived knowledge gained, changes in quality of life, and how individuals are utilizing their high tunnels. Those who have returned their surveys indicate a high level of satisfaction and increase perceived knowledge gained.
  A total of 50 surveys were distributed to individuals known to have participated in a University of Wyoming High Tunnel Educational Workshop and use high tunnels. The following can be inferred from the data:
  - High Tunnels are equally used for personal production and production to be sold at markets. Producers with high tunnels also educate others but education is slightly less important than production;
  - On a scale of 1 to 5 (5 being the highest) the overall positive impact the high tunnel has had on each of the producers is 4.8;
  - Other quality of life data captured: Healthy eating, effects on mental health, and producer financial gains all improved 30%;
  - The availability of fresh produce and the quality if items produced each increased 40%;
  - The variety of items produced (specialty crops) increased 70%;
  - The primary crops produced include: all members of the nightshade family (i.e., tomatoes and peppers), salad greens, snow peas, and berries.
  - Of those producers who sell to the public, the average annual number of consumers reached is 202.5;
  - The average annual number of individuals who tour a high tunnel is 32;
  - Fifty percent of the respondents have more than one high tunnel;
  - Most (83%) of the structures the producers built themselves;
  - These producers utilize an average of 1793 farmable square feet per year.
  - High tunnels when covered with material(s) other than traditional greenhouse film seem to hold up longer and have fewer maintenance issues.
  - 68% of the respondents utilize designs modified and publicized by the University of Wyoming High tunnel Educational Program.
  - To date we have documented 12 hoop houses constructed as a direct result of the knowledge gained and information gathered from Wyoming hoop house workshops. These structures were constructed in a variety of locations in Wyoming and include the following communities: Lander, Burns, Cheyenne, Laramie, Powell, Sundance, Lusk (2) & Torrington (4). These structures were all built between 2011 and 2014? Many hoop house educational workshop participants indicated they would like to build their own hoop house however, individuals do not typically go home and immediately build a hoop house after attending a workshop. This is due to a variety of reasons including: financial, lack of space, just not ready to dive into the project.

- (100%) of the participants who filled out surveys indicated that their knowledge concerning how to construct a hoop houses had increased.
- A total of nine publications and six educational videos have resulted from this project (see additional Information section below)

BENEFICIARIES

The beneficiaries of the project included producers and consumers of Wyoming. Wyoming benefits as a whole as season extension programming leads to greater production efficiencies, increases profitability, and resource conservation. Over the duration of the grant, 152 Wyoming residents participated in a high tunnel educational workshop resulting in the construction of 8 high tunnels built. Participants consisted of 86 adults; 23 seniors; 44 youth; and 14 individuals with special needs. These workshops can last 6 to 16 hours each, this time frame provides ample opportunity to not only educate participants on the construction of these structures, but other educational discussions have included: the benefit of extending the growing season; how-to-grow traditional and non-traditional crops (items not usually produced in a traditional Wyoming garden setting); pest control strategies; water use efficiencies and soil sustainability. The eight structures built using grant funds cover 3,120 farmable square feet and represent the potential annual producer income (or savings) of $15,600 to $31,200.The project owners (whether Master Gardeners, University Extension Staff; or individual producers) who manage these structures for demonstration or production of crops for sale via the local markets benefit by providing service to the local communities. The local economy benefits via on-farm and local market sales. The general public benefits as these structures continue to be used for educational purposes. In Wyoming, these structures are utilized to extend both the beginning and end of the growing season – significantly impacting the availability of fresh produce earlier and later into the normal season, these slight changes have influenced the availability of a variety of specialty crops for longer periods of time to the project owners and the general public. Of the workshops completed (Table 1), one structure was placed at a group home for individuals with learning and physical disabilities, one structure was placed at a k-12 school in Farson, several were placed in locations where the Master Gardeners are utilizing them as a teaching/learning/and production tools.

LESSONS LEARNED

- Conducting an educational workshop where the goal is to construct a structure using a handful of eager and interested individuals who possibly lack skills with basic tools and construction should be addressed at the beginning of the project. Discuss the proper safety and how to use tools correctly. Workshops where these issues were addressed early in the process always seemed to run smoother and finish on time.

- These workshops can be lengthy, are weather dependent, and dependent upon the participants to complete. The leader must be engaged and keep participants engaged throughout the project.
- Always bring along, extra tools, materials, and supplies needed to complete the project – significant delays occur if key individuals must make a materials run and there is no one to lead the project.
- Many communities in Wyoming are small and do not have a local hardware or lumberyard.
- Feed, water, and educate volunteers throughout the day. There are always questions to be answered – be ready with the answer.
- Don't let external issues effect the outcome of the workshop.
- Bring sunscreen and insect repellent.
- Value everyone who is a participant – they are there to work and learn.
- Make the workshop fun.

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ADDITIONAL INFORMATION

Wyoming Hoop House Information Network – University of Wyoming Extension Website
http://www.wyomingextension.org/whhin/
How to build a High Tunnel publication – University of Wyoming Extension publication
http://www.wyoextension.org/agpubs/pubs/B1240.pdf
Insect and Mite Control in Greenhouses [High Tunnels] – Author reference material
http://www.uwyo.edu/barnbackyard/_files/documents/resources/insects/htinsectcontrol2013.pdf
Various published articles related to hoop houses
http://www.uwyo.edu/barnbackyard/_files/documents/magazine/2011/fall/102011bbfeaturedlandownerhightunnel.pdf
http://www.uwyo.edu/barnbackyard/_files/documents/magazine/2011/summer/072011bbhightunnelsurprises.pdf

Edwards, J.M. “101 (almost) ways for a high tunnel to die”. Barnyards & Backyards. Fall 2014.

Edwards, J.M. “Ask Sam – Which way should a hoop house be oriented?” Barnyards & Backyards. Summer 2013.

Edwards, J.M. “High Tunnel Insect and Mite Control”. Barnyards & Backyards. Spring 2013.

Edwards, J.M. “Featured landowner: High Tunnels, high production and the high life”. Barnyards & Backyards. Fall 2012.

View videos from the Wyoming Hoop House Information Series. Videos available on the Playlist include: **3 Minute High Tunnel Build**, Laramie High Tunnel Time lapse, High Tunnel Design Options, SAREC Field Day High Tunnels, SAREC Field Day Soil Types, and an Overview of High Tunnels. http://www.wyomingextension.org/whhin/?page_id=397

UNIVERSITY OF WYOMING EXTENSION

2013 IMPACT STATEMENT

EXTENDING THE GROWING SEASON OF WYOMING

SITUATION

- The world population is expected to increase to 9 billion people by 2050. One challenge is to feed this growing population while reducing environmental risk and encourage resource stewardship.
- University of Wyoming Extension strives to deliver unbiased, research based information to a diversified agricultural audience from conventional to organic producers.
- In 2013, University of Wyoming season extension programs reached over 220 individuals- this number does not include numerous educational tours of high tunnels across the state.

Actions

Ten High Tunnel educational workshops were conducted in nine communities. These communities are in eight of the 23 Wyoming counties. A total of 95 adults and 125 youth participated in these "hands-on learning" workshops. **Most participants constructed a high tunnel and were given the opportunity to learn about resource management, pest management, and the production of their own food.**

Measurable Impacts:

- These projects added 4,214 square feet under high tunnel production to the state of Wyoming that can potentially return an estimated $21,070- $42,140 annual gross production dollars (as savings OR income).
- 1,221 total volunteer "man-hours" donated to the communities which High Tunnel Workshops were conducted.
- These workshops contributed $23,064 = value of Volunteer Time at $18.89/hour.

Other Results

Wyoming Benefits as a whole as season extension programming leads to greater production efficiencies, increased profitability, and resource conservation.

Providing opportunities to include youth in this programming helps them to see that they can make a difference in future food production.

100% of the participants responded that the workshop met or exceeded their expectations.

Bottom Line: The knowledge participants gained contributes to greater confidence in their ability to grow their own food.

Jeff Edwards UW Extension Specialist – More information available at Wyoming Hoop House Information Network http://www.wyomingextension.org/whhin/

October 18, 2013

Understanding High Tunnel/ Hoop House use in Wyoming

How do you use your High Tunnel?		Rank (1-3) 1 = most important
	Personal	
	Production for Market	
	Educational	

Help us to understand the overall impact the high tunnel had on you?	Highly Positive	Somewhat Positive	Neutral	Somewhat Negative	Highly Negative
	5	4	3	2	1

Help us understand the "amount of change" a high tunnel has had in the following areas:

when answering - consider you, your clients, students, and/or customers - Circle the number that best answers the question Prior to and After use of a high tunnel (i.e., Prior to using a high tunnel my "healthy eating" score may have been a "3" and after using a high tunnel my "healthy eating" score may be a "5").

	Prior to Using the High Tunnel					**After Using the High Tunnel**				
	Highly Positive	Somewhat Positive	Neutral	Somewhat Negative	Highly Negative	Highly Positive	Somewhat Positive	Neutral	Somewhat Negative	Highly Negative
Healthy eating	5	4	3	2	1	5	4	3	2	1
Availability of Fresh Produce	5	4	3	2	1	5	4	3	2	1
Quality of Items Produced	5	4	3	2	1	5	4	3	2	1
Variety of Items Produced	5	4	3	2	1	5	4	3	2	1
Growing Season	5	4	3	2	1	5	4	3	2	1
Mental health (theraputic value)	5	4	3	2	1	5	4	3	2	1
Financial Impact (either from savings at the grocery store or direct sales to customers)	5	4	3	2	1	5	4	3	2	1
Education of self and/or others	5	4	3	2	1	5	4	3	2	1

What is the primary crop produced in your High Tunnel?	
What is the most profitable crop produced?	
Estimate (or actual) the annual number of people to whom you have sold produce	
Estimate (or actual) the annual number of people which have toured or used the high tunnel for educational purposes	

	Circle the best answer below		
I have more than one Hoop House	Yes	No	
Type of structure you use	Traditional Hoop	Hard sided (wooden Base)	Gothic
Is the Structure a(an)	Pre-engineered Kit	UW/NMSU Design	
Structure was built by	Myself	UW Workshop	Contractor / others
Type of Covering	Traditional Greenhouse poly	Woven Poly	Don't know
Total Farmable Square Feet covered by hoop house(s) (length X width)			
Age of oldest structure		years	
How is the structure holding up - Maintenance issues?			

Thank you for your time!

SPECIALTY CROP MARKETING, PROMOTION AND EDUCATION SUPPORT-WDA

SUMMARY

Wyoming agriculture is dominated by ranching and production of hay, sugar beets, wheat and other grains. Historically specialty crop have not been a major player. With the increasing demand for local food the development of produce and horticulture products has become a vital goal of the Wyoming Department of Agriculture. In order to enhance the development and availability of Wyoming produce and horticulture, the Wyoming Department of Agriculture (WDA) requested funds to support program efforts covering marketing, education, season extension, research, food safety, and product distribution. The specialty crop grant program required support for development, monitoring, and cooperation with agency partners and grantees. This support was critical to maintaining the integrity and stability of the program by providing overall marketing and technical outreach. The goal of the Wyoming Department of Agriculture is to increase the availability of specialty crops within Wyoming. The funds provided support for seminars and workshops that provide information on production, marketing and food safety of specialty crops. It also supported travel expenses and marketing materials for the position to provide technical assistance to other state agencies, the University of Wyoming, Community Colleges, producer groups, producers, processors and consumers to expand specialty crop production in Wyoming.

PROJECT APPROACH

The program supported specialty crop activities that range from booth space, travel for speaking and promotion at conferences, workshops, speaker fees and printing. In order to ensure that we are only supporting specialty crop related expenses we either opted to support a specialty crop speaker, purchase booth space to display specialty crop program and project materials and looked at the overall agenda to see if it totally supported specialty crop related topics on the agenda. Funds from previous specialty crop grants were expended first before use of these funds.

Technical Assistance Position: The funds provided travel and marketing materials and supplies that supported the development of information, promotional assistance and technical assistance to individual growers, processors, producer groups, consumers and educators throughout the duration of the grant. In addition the funds promoted specialty efforts to increase the number of specialty crop grant proposals and work on overall statewide specialty crop marketing efforts.

Conference Support: Specialty crop promotion was supported at nine conferences/workshops. They included:

Idea Conference: Specialty Crop Promotion Booth and information materials (262)

Laramie Rivers Conservation Expo (500+): Hoop house workshop (6)
Freemont County Farm Days Specialty crop booth and information (300+):
Farmers Marketing Conference: Specialty crop booth and information (54)
Thermopolis CSA workshop: Specialty Crop presentation (36)
WESTI Days Booth Specialty crop booth and information (112)
Recipe to Reality Workshop (20)
Wheatland Middle School Hoop house build/planting (200)
Douglas Hoop house build (19)
Riverton Acidified Food Workshop(39)
Agrifuture Specialty crop booth and information specialty crop speakers (117)
SAREC Field Day regarding specialty crop trials
Laramie Field Day regarding specialty crop trials

GOALS AND OUTCOMES ACHIEVED

Through education and marketing efforts the funds will provide the support necessary to expand of the specialty crop program in Wyoming.

Goal: Increase the number of Wyoming Specialty Crop Producers.

Benchmark: The base line is 253.

Target: Increase the number of producers and processors by 2.5% to 260.

Performance Measure: The number of new producers was gauged by analyzing Wyoming Ag Statistics surveys to be 7. Through the producer hoop house grant program we were able to identify 5 additional new direct to consumer producers. The producers identified were added to the list of known specialty crop producers. The list helps in promotion of new and existing Specialty Crop programs.

Goal: Promote the Specialty Crop Grants program through conferences and workshops.

Benchmark: Baseline is four (4) conferences/workshops received support in 2010

Target: Increase the number by 50% to six (6).

Outcome Measure: The number of conference /workshops that funds provided either technical or marketing support increased to 9. The feedback we received was used to help guide us in topics of interest for future specialty crop funding opportunities. We looked for areas that provided the best benefit for specialty crop production. Overwhelmingly the producer and nonprofit small grant programs were considered extremely valuable. Additional areas of interest by producers included food safety, practical short term research that had more immediate value for producers , workshops that provided information to help solve production issues, workshops on processing specialty crops and finally research on potentially new higher value specialty crops that could grow in Wyoming.

BENEFICIERIES

Beneficiaries of this program included consumers, educators and producer and processors. Over 150 producers and processors received training do to the program. An additional 40,000 plus consumers and producers were impacted by the specialty crop displays. We saw new hoop houses built that exposed an additional 225 individuals to construction techniques. The program had additional far reaching results that are often hard to capture. We are often surprised hearing from individuals or organizations interested in the small grant program who picked up information a year or two before. Each successful project has provided additional promotion for the industry as a whole. We are finally reaching the point where local organizations are becoming more aware of the opportunities of the program.

LESSONS LEARNED

The expansion of specialty crop production continues in all areas of the State. Many areas in Wyoming though are just not suited to successfully grow crops without the use of poly tunnels. At the same time consumers are looking for more local grown products. There will always to be a steep learning curve for new producers. Not all projects will be successful but a multipronged approach seems to be working. Since we started the specialty crop program the number of farmers markets has almost doubled. To solve this problem we have begun working on value added processing, CSA development and online marketing opportunities.

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TECHNICAL ASSISTANCE POSITION

SUMMARY

The development of produce and horticulture products is a vital goal of the Wyoming Department of Agriculture. In order to enhance the development and availability of Wyoming

produce and horticulture, the Wyoming Department of Agriculture (WDA) requested $24,000 for 2011 Specialty Crop Block Grant Program to support processors and growers of Wyoming, specialty crops, and the citizens of Wyoming by covering five key areas: marketing, education, season extension, research, food safety, and product distribution. The specialty crop grant program requires development, monitoring, and cooperation with agency partners and grantees. The Specialty Crop Technical Assistance Position manages the statewide specialty crop program efforts. This position continues to be critical to maintaining the integrity and stability of the program by providing overall marketing and technical outreach support. As traditional commodity producers looked to specialty crops to increase their bottom line, this position provided much needed assistance. Wyoming ranks 44th among all states in crop production and 38th for all agricultural production. In 2008, the farm gate value of crops for Wyoming totaled 273 million dollars. This position also coordinated with other state agencies, the University of Wyoming, Community Colleges, producer groups, producers, and processors to expand specialty crop production in Wyoming. The specialty crop portion of this position is only 26% of the total cost of this position. Other funding comes from Wyoming general funds to promote production, marketing and consumption of all agricultural products.

PROJECT APPROACH

Technical Assistance Position: In 2012 the contract employee was hired full time as a grants manager for the WDA. Prior to 2012 a contracted position handled all the specialty crop functions. The following were efforts have been undertaken by the program manager to expand specialty crops in Wyoming. The position worked with other agencies and organizations to expand the specialty crops industry in Wyoming. Partnerships with the following organizations were maintained for expansion of Specialty Crops in Wyoming: the Wyoming Rural Development Council, University of Wyoming, the Wyoming Business Council, UW Cooperative Extension agents across the state, Rocky Mountain Farmers Union, Main Street Program in Saratoga, Pushroot Community Gardens in Lander, Wyoming Bee Keepers Association, Sheridan College, Wyoming State Fair, UW Master Gardeners Program, Wyoming Farmers Marketing Association, UW Sustainable Agriculture Research and Extension Center Torrington, University of New Mexico Cooperative Extension, High Tunnel Program, Powell Research Stations in Powell, Laramie Sheridan and Torrington, Wyoming Growers and Grounds Keepers Association, Wyoming Lodging and Restaurant Association, Wyoming Grape Growers Association, Goshen County Fair, Laramie County Fair, Carbon County Fair, Niobrara County Fair, Platte County Fair, Arapaho Ranch, Cheyenne Botanical Gardens, Colorado State University Specialty Crop Program, Goshen Economic Development, University of Montana Extension, Wyoming Conservation Districts, Laramie Local Foods, Pinedale Local Foods, NRCS, Rural Development FSA and NASS.

The position provided the following to support the specialty crop program.

*High tunnel workshops provided information on construction techniques and season extension advantages to producers and agricultural professionals.
*Hardsided high tunnel manual development.
*The Specialty Crop Grant application process was updated
*Brochures for the Producer Season Extension Grants, the Non Profit High Tunnel Grants and the Scholarship Grants were updated, printed and distributed.
*Efforts to promote specialty crops to consumers in Wyoming included speaking engagements in Riverton, Torrington, Powell and Cody
*In order to increase applications to the specialty crop program, the online specialty crop application manual was updated and the data base of 350 economic development professionals, agricultural specialists and producers was updated for marketing the specialty crop program.
Information on the Specialty Crop Program was highlighted in WDA Tuesday Tidbits
A new power point was developed on how to apply for the small grant program
*Through the outreach activities of the Specialty Crop Technical position the number of SCPG proposals received was 15 of which 10 were funded.
*Technical support was provided at the following high tunnel builds in Douglas, Gillette, Powell, Torrington, Laramie and Riverton.

*Specialty Crop site audits were conducted in Torrington, Elk Mtn, Saratoga, Hanna Medicine Bow, Lander, Cheyenne, Laramie Powell, Sheridan, Yoder and Lingle.
*Marketing of the Specialty Crop Program was done at the following events. The 2012 Wyoming Farmers Market Conference, UWYO Spring Garden Conference, Idea Conference, Agrifuture Conference, Wyoming State Fair, Laramie Local Foods.
*The following out of State events were attended: Colorado Specialty Crop Field Day, the New Mexico Small Farm Conference, and Kansas State Extension High Tunnel Workshop.
*Site audits of projects in Worland, Laramie, Torrington, Sheridan, Medicine Bow, Cody & Powell
*As an advisor to the Wyoming Farmers Market Association, the position provided technical and marketing support on specialty crop topics presented at the 2012 and 2013 WFMA convention that impacted 102 market managers and vendors. Support has been targeted to; education, season extension, research, food safety and product marketing/promotion.

GOALS AND OUTCOMES ACHIEVED

Through education and marketing efforts, this person will continue to provide the expertise and oversight necessary for the expansion of the specialty crop program in Wyoming.
Goal: Increase the number of Wyoming Specialty Crop Producers.
Benchmark: The base line is 253.

Target: Increase the number of producers and processors by 3% to 261.
The number of new producers was gauged by analyzing Wyoming Ag Statistics surveys to be 7. Through the producer hoop house grant program we were able to identify 5 additional new direct to consumer producers. The producers identified were added to the list of known specialty crop producers. The list helps in promotion of new and existing Specialty Crop programs.
Goal: Enhance production, consumption and education of specialty crops by increasing the number and quality of grant proposals for the Wyoming Specialty Crop Grant Program
Bench: The base line for 2010 was 14, of which 8 are included in the State plan.
Target: mark Increase the number of proposals by 50% to 21.
All proposals were logged and information on the applications maintained throughout the grant period. The grant applications received they were analyzed for ways to improve the process. We did not meet our goal to increase the number of grant proposals to 21. In 2012 we received 14 proposals. In conversations with several researchers who had not been funded they indicated that it was a lot of work to prepare proposals and not get funded. Because of this a concept proposal approach was instituted in 2013 to reduce applicants' frustration at not being funded. The concept proposals limit the amount of information to three pages. This forces the applicant to succinctly propose their proposed project. We received 24 concept proposals.
Goal: Promote the Specialty Crop Grants program through the WDA website.
Benchmark: The average monthly hits are presently 175 and will be used as the baseline.
Target: Increase the number hits to the specialty crop pages by 25%.
The number of hits logged by the end of 2012 was 15,237 or 7 fold increase.
Goal: Promote the Specialty Crop Grants program through the publications.
Benchmark: Baseline is 7 articles/publications
Target: Increase the number by 13% to 8
The publications updated or created during the grant included the Producer hoop house grant brochure and application, the nonprofit small grant brochure hard sided high tunnel manual, updated 12x32 hoop house manual, Tuesday tidbits specialty crop article, back yards and barnyards specialty crop article, a specialty crop video, and a how to power point on grant application for specialty crop applicants. We were able to measure a seven fold increase in website hits. At trade events over 300 hoop house manuals were distributed to interested producers and backyard gardeners. Specialty crop information handed out at conferences or obtained on the website resulted in 14 applications to the small grant program in 2012 and 24 in 2013
Goal: Provide assistance to conferences and workshops.
Benchmark: Baseline is 4 conferences/ workshops received support in 2010
Target: Increase the number by 50% to 6.

Performance Measure: Technical support was provided at the following high tunnel workshops in Douglas (11), Gillette (20), Laramie(6),Riverton (18) and Powell. Marketing of the Specialty Crop Program was also done at the following events by sponsoring specialty crop booth/information displays. The Wyoming Farmers Market Conference (54), UWYO Spring Garden Conference (68), Idea Conference (262), Agrifuture Conference (117), Wyoming State Fair (40,000+ attended fair) Laramie Local Foods(85).

BENEFICIARIES

The efforts by the position to build partnerships over the past years have finally begun to gain independent momentum. This is specifically evident in the farm to school area. The Wyoming Department of Education and the University of Wyoming have stepped up their advocacy and educational efforts for local specialty crop production. Outreach to these and other nonprofit organizations have stimulated a multitude of community gardens, local food gatherings, producer workshops and other educational programs that heavily focus on specialty crop production, processing and distribution. Individuals exposed to specialty crops through our website have also increased to over 15,000. http://wyagric.state.wy.us/ The University of Wyoming also has developed a website for producers and back yard gardeners on hoop house construction and use at http://www.wyomingextension.org/whhin/. The 40,000 plus visitors to the Wyoming State Fair are now exposed to multiple hoop house displays managed by the Master Gardeners. The heritage apple trees planted there provide an educational opportunity on the diversity of apples from the past. We also saw new hoop houses built that promoted season extension techniques to hundreds of producers and back yard gardeners interested in alternative methods of specialty crop production.

LESSONS LEARNED

This position plays a pivotal role in the expansion of specialty crops in Wyoming a is required to wear many hats. Not only is there a need to educate the producers, processors and consumers but the position is also responsible for promotion, expansion and oversight of the program. As such in order to expand the specialty crop industry in Wyoming we need to

leverage other State agencies, institutions, nonprofits and local governments. There will always to be a steep learning curve for new producers. A hands on approach with some projects is necessary in order to kick start the growth of the industry.

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