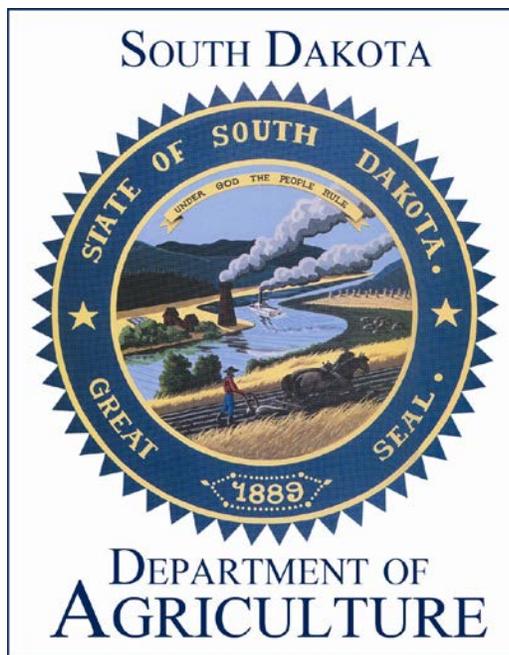


**FY2011 SCBGP-FB  
Final Performance Report  
South Dakota Department of Agriculture  
Grant No. 12-25-B-1254**

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## **Project 1**

**Title** – Assessing Cold Hardiness of Grape Cultivars for SD Grape Growers

**Subrantee:** South Dakota State University

**Contact Person** – Anne Fennell | 605-688-6373 | anne.fennell@sdstate.edu

### **Final Report**

SCBG Final Performance Report 2014

Anne Fennell, Plant Science Dept. SDSU 1

Project Title: Assessing Cold Hardiness of Grape cultivars for South Dakota Grape Growers

### **Project Summary**

Interest in establishing vineyards has increased steadily since the 1996 passage of the South Dakota Farm Winery Bill. However, northern vineyards encounter intermittent damaging winter freezes which impact vineyard productivity and sustainability. It is critical that growers have good cultivar performance data to aid in cultivar selection decisions to maximize vine longevity and to minimize retraining and replant costs after hard winters. Selecting cultivars with acclimation and freezing tolerance characteristics best suited to northern winter climates will diminish vineyard costs for the grower. The objective of this study were to measure freezing tolerance of emerging cultivars for cold climate vineyards in three consecutive years to provide cultivar winter hardiness performance in vines grown in South Dakota climatic conditions. This study was conducted for three consecutive years to sample in different winter conditions thus improving the cultivar information available for vineyard planting decisions.

### **Project Approach**

Vines from four vineyards, with diverse temperature conditions, were sampled three to five times (November-March) during the dormant period and tested at SDSU for freezing tolerance and bud break potential. Vineyards were sampled in 3 consecutive years.

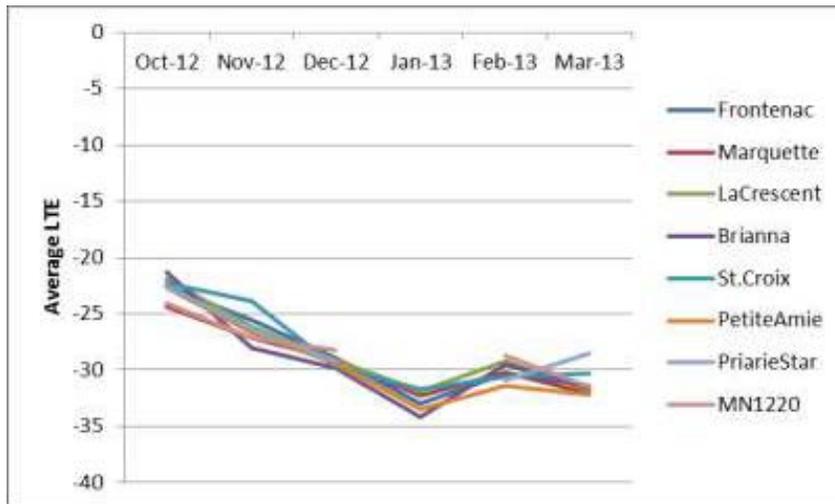
Grower cooperators provided cane materials for testing allowing eastern and western vineyards to be sampled.

Vineyard locations:

- NE1020 Coordinated Planting – Fennell, SDSU NE Hansen Research Farm, Brookings, SD
- Lewis and Clark Lake Vineyards – Greg and Muriel Stach, Yankton SD
- Tuckers Walk Vineyard – Sue and David Greenlee, Garretson, SD
- Old Folsom Vineyard – Michael Gould, Rapid City, SD replaced Jackson Vineyard Belle Fourche, SD in year 2.
- Cooperators were provided sampling instructions and schedule.
- Upon receipt of materials in Fennell laboratory, buds were examined visually to determine viability upon receipt, freezing tolerance was assayed using differential thermal analysis. Single node cuttings were placed in forcing conditions (25C with 14h daylength) to further analyze viability and to determine chilling fulfillment in three consecutive years.
- Six cultivars (Frontenac, Marquette, Brianna, LaCrescent, St Croix, Frontenac Gris, Prairie Star, Petit Amie) were tested in each year. Prairie Star and Petit

Amie were from Brookings Location only. In years 2011-2012 and 2012-2013 all cultivars were able to tolerate -25C in midwinter (Figure 1. 2012 to 2013 dormant season freezing tolerance are shown in Fig 1.). In 2013-2014 SCBG Final Performance Report 2014 Anne Fennell, Plant Science Dept. SDSU 2 dormant season many cultivars were severely damaged in January with 50 to 90% primary bud damage in la Crescent, Prairie Star and Petit Amie.

- Figure 1. Freezing tolerance of cold climate cultivars.



- Results from the three years indicate that Frontenac, Marquette and Brianna are the most reliably freezing tolerant under differing acclimation and deacclimation temperature conditions.
- Information was shared with state and regional growers annually (>150 individuals) through presentations at SD Specialty Growers Workshops in South Dakota and Multi-state meetings in Minnesota, Nebraska and New York. Information will be used to update cultivar descriptions for viticulture website at SDgrapes.sdstate.edu. Techniques used in this study served as basis for contributing to 2014 SCRI CAP proposal: Mitigating Cold Damage in Fruit Crops.
- Three undergraduate and two graduate students were trained in assaying freezing tolerance and bud chilling fulfillment.

### Goals and Outcomes Achieved

Goal	Performance Measure	Accomplishments and Beneficiaries
Providing uniform sampling and grower training to optimize data reliability.	Provided growers with instructions, notified each cooperator of sampling and shipping schedule and followed up with email after sample receipt.	Four growers received sampling training and feedback. Sampling from cooperators was very consistent in years 2 and 3. Three undergraduates and 2 graduate students received training in differential thermal analysis sample.

Test samples from each location once per month (November through March) to determine cultivar response.	Test 4 standard cultivars from every location and 2 additional cultivars that are growers choice (6 cultivars total) once per month between November and March.	Eight cultivars were sampled in each of three years with four cultivars consistent across all 4 locations.
Provide data to the growers.	Data was summarized annually for growers.	Overall results will be incorporated into cultivar descriptions for <a href="http://SDgrapes.sdstate.edu">SDgrapes.sdstate.edu</a> .
Present one talk at an annual growers workshop explaining cultivar winter hardiness characteristics.	New information is provided at each annual conference.	Over 150 individuals were reached through presentations at SD Specialty Growers Workshops in South Dakota and Multi-state meeting in Minnesota, Nebraska and New York. Results presented in 2013 to Viticulture researchers at NE1020 meeting (20 participants)

### **Lessons Learned**

Annual retraining of grower cooperators provided improved consistency of sampling in year 2 and 3.

Differential thermal analysis must be used with care to avoid over estimating freezing tolerance. In 2012 to 2013 Petite Amie showed greater freezing tolerance than Frontenac and Marquette, however spring field observations suggested this was not correct. Further analysis of low temperature exotherms (sample bud freeze events) indicated potential injury prior to freezing test. Comparison of sample viability assays between the sample entry into lab and after chilling fulfillment assay provided better correspondence with field observations.

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### **Project 2**

**Title** – Demonstrating the Feasibility of Maple Syrup Production in South Dakota

**Subgrantee** – South Dakota State University

**Contact Person** – Pete Schaefer | 605-688-4732 | [peter.schaefer@sdstate.edu](mailto:peter.schaefer@sdstate.edu)

### **Final Report**

#### **Project Summary:**

The objective of this project was to introduce silver maple sugar bush syrup production to South Dakota (SD) with the intent to inspire rural landowners to pursue maple syrup production as a value-added product within their existing windbreaks and native woodlands. Maple syrup production provides an opportunity for SD landowners to generate additional income with a relatively small initial investment while simultaneously enhancing the competitiveness of this specialty crop.

Maple syrup production is limited to the United States and Canada, with Canada accounting for roughly 80% of world production and Vermont leading in the U.S. with nearly 50% of our domestic maple syrup production. Maple syrup is considered a high-value product, with prices averaging about \$40.70/gallon in 2008 (Agricultural Marketing Research Center, 2010). Although South Dakota does not currently produce maple syrup commercially, we propose that the silver maple sugar bush offers a new specialty crop to South Dakota producers for commercial production.

The maple syrup industry is based on sugar maple, not silver maple. While native to a small area of northeastern South Dakota, sugar maple is not generally well-adapted to growing conditions elsewhere in the state, and is best suited to more moderate growing conditions found in urban and community settings. For this reason, sugar maple provides limited potential for syrup production in South Dakota and, unsurprisingly, we have no documented evidence of commercial maple syrup production in the state.

Silver maple on the other hand, which is native to the southeast corner of the state and broadly adapted east of the Missouri River, can have a sap sugar content that rivals sugar maple and produces a high quality syrup (according to research at Southern Illinois University and Dr. Schaefer's experience in South Dakota). Observations of sap sugar concentrations of 2% - 3.5% in trees north of Brookings, compare favorably with national averages for syrup production from sugar maple.

Beyond a general suitability for syrup production, silver maples exhibit two other traits that make them favorable for use in South Dakota. First, they are the fastest growing native maple reaching a harvestable size in 15 to 20 years, which is one-half to one-third the time for sugar maple. Second, silver maples generally produce multiple stems, so more taps are possible per tree than with sugar maple. For example, in recent years Dr. Schaefer has placed as many as 45 taps in 15, 30-year-old silver maple trees. Same-aged sugar maples would support just 15 taps.

The establishment of even a small maple syrup industry in South Dakota requires a significant number of silver maples of harvestable size. Tree planting records of South Dakota Conservation Districts indicate that approximately 20,000 silver maples were planted each year from 1989 through 1995. If half of those trees exist today (60,000 trees), they have the potential to produce 40,000 gallons of syrup. While it is not reasonable to expect this level of production, it supports the thesis that sufficient numbers of silver maple exist to sustain maple syrup production in eastern South Dakota; particularly if we take into consideration the number of silver maple planted prior to 1989.

Since no operating "sugar bushes" currently exist in the state, this project offers great potential for propagating industry education in maple syrup production and adding maple syrup to South Dakota's specialty crop portfolio.

### **Project Approach:**

In the fall of 2011 two sites were prepared for establishing the silver maple “sugar bushes”. In the spring of 2012, 150 trees were planted in the north end of the State Arboretum, along a main entrance to SDSU. This was a change from the original project plan. However this site provides much higher visibility for this sugar bush than the original site, and still maintains much of the lowland features of the original site. The trees were planted in clusters of 3 and somewhat randomly spaced over the 1 acre site. Again, this is a change, primarily to improve the aesthetics of this planting along a main entrance to SDSU. It also provides an alternate planting configuration to compare to the traditional plantation spacing. An additional 150 trees were planted at the N.E. Hansen Research Farm, two miles east of Brookings. These trees were planted in rows with a 12’ x 12’ spacing. Both sites provide excellent opportunity for public demonstration. Tree survival is near 100%.



Left: Hansen Research Center sugar bush, and Right: McCrory Sugar bush after 3<sup>rd</sup> growing season.

Materials and supplies necessary to demonstrate maple syrup production were acquired in late 2012/early 2013, with the evaporator operational for the 2013 season. Additional supplies were acquired for the 2014 season, and an open-sided cover was constructed for the evaporator. Students were involved in tapping the trees, placing 40 taps in 25 trees both years. Over 500 gallons of sap was collected April 3 – 24, 2013, producing about 12 gallons of syrup (42 gallons of sap/gallon of syrup; average of 2.4% sap sugar concentration). Sap production was significantly lower in 2014, as 115 gallons were collected between March 19 and April 7. We suggest the lower yield was due to a combination of extended drought in 2013 and deeply frozen soils entering the “sap season” of 2014. Sap sugar concentration averaged 3%, with a



production of about 3.5 gallons of syrup. The syrup was packaged and sold through the McCrory Gardens Education and Visitor Center gift shop.



This display generated considerable interest with visitors, all of whom were unaware that syrup could be produced in South Dakota. Information was posted on the McCrory Gardens web pages, facebook, etc. to announce when the sap was flowing and the expected evaporator operation schedule to encourage public viewing of the process.

Although not in the proposal plan, advantage was taken of an opportunity to present a session on maple syrup production during the SD Master Gardeners State Conference in September of 2012. This proved very useful in developing materials for the planned workshops that followed. Presentations were also given to students in two courses at SDSU (Environmental Stewardship in Horticulture; Ethnobotany). In addition, students in the stewardship course participated in tapping the trees used for syrup production in 2013 and 2014. The demonstration site includes a mixture of sugar, silver, red and hybrid maples.



The first Maple Sugaring Workshop was held in early April, 2013, at the McCrory Gardens Education and Visitor Center in Brookings, with 23 in attendance from as far as 140 miles away. The 1.5 hour indoor session was followed by observation of the tapped trees and evaporator operation.



Four workshops were presented in February and March, 2014, at four sites spaced across eastern SD. Venues included the Regional Extension Centers in Aberdeen and Sioux Falls, the McCrory Gardens Education and Visitor Center in Brookings, and the Public Library in Yankton. The workshops were approximately 2+ hours in length to accommodate the large number of questions and comments following the formal presentation. Total attendance was 97, ranging from 13 in Aberdeen to 44 in Brookings. All attendees (120 for both years) were surveyed in May, 2014 to evaluate the degree to which project goals were met, to provide insight regarding participant satisfaction with the workshops, and to provide information to help guide the development of future workshops. 33 participants completed the survey (27.5%). Following is a summary of the relevant results for this report.

- 46% of respondents were unaware or unsure that syrup could be produced in SD prior to attending the workshop.
- 91% were very satisfied with the workshop (9% somewhat satisfied).
- 76% were very satisfied with the quality of the speaker (24% satisfied).
- 77% were very satisfied with the workshop content (20% satisfied).

- 85% were very satisfied with the speaker’s knowledge of the subject (15% satisfied).
- 79% were very satisfied with the speaker’s presentation skills (21% satisfied).
- 85% were very satisfied with the speaker’s ability to engage the audience (12% satisfied).
- 89% were very likely to recommend this workshop to a friend or colleague (11% somewhat likely).
- 76% had no experience producing maple syrup; 12% had 1 – 3 years experience; and 12% had 4+ years experience.
- After attending the workshop 42% made maple syrup (6% produced 11 or more gallons of syrup; 3% produced 6 – 10 gallons; 9% produced 2 – 5 gallons; 24% produced 1 or fewer gallons).
- After attending the workshop 12% indicated an interest in commercial production; 67% in hobby production; 12% not sure; and 9% no interest.

*Conclusions and Recommendations:*

Given that maple syrup production has little to no history in South Dakota, development of commercial production will take time. Even so, through this project we have demonstrated that there is interest in maple syrup, especially at the hobby level. It has also demonstrated that continued efforts to promote maple syrup production in South Dakota are justified. We recommend that the McCrory Gardens, SDSU Extension and SD Dept. of AG continue to collaborate in fostering this potential industry. With the goal of the project to promote commercial production, we see a significant increase in hobby production as an important step toward development of a viable commercial industry. In fact, we know of one hobbyist who is actively pursuing commercial production for the 2015 season, while three others have expressed an interest in moving in that direction. In addition, increased sales of “hobby” syrup through farm stands and farmers markets will raise awareness with the general populace, helping to increase the market for this product. It will also raise awareness with state agencies responsible for regulating agricultural/food sales. Aside from federal (USDA) regulations, there appear to be no directly applicable state (SD) regulations with respect to maple syrup, which may leave potential commercial producers somewhat in limbo.

*Contributions and roles of project partners:*

The McCrory Gardens and SDSU Extension were instrumental in providing publicity and workshop facilities. Assistance was also provided by SD Buy Fresh Buy Local. The maple syrup display and tasting in the McCrory Gardens Education and Visitor Center also raised the awareness of maple syrup production in SD to a large number of garden visitors.

**Goals and Outcomes Achieved:**

Goal	Performance Measure	Target	Outcome
Invite Producers to Workshop	Number of producers in attendance	30/year	5 workshops; 120 participants
Determine producer interest in maple syrup production	Survey at the end of the workshops	10/year	4 of 33 respondents indicated an interest in commercial production; 22 of 33 respondents indicated an interest in hobby production

Establish commercial maple syrup production	Follow-up survey one year later	5/yr	1 (planned 2015)
Establish a research sugar bush	Established sugar bush	1	2 plantings established on contrasting sites

The overall goal of the project was to demonstrate the potential for commercial maple syrup production in eastern South Dakota. This goal was addressed through the presentation of 5 workshops, determination of interest in maple syrup production and the establishment of two research sugar bushes. In terms of measurable outcomes, the project exceeded the target for workshop participation and successfully established two sugar bushes. However, the targets for generating interest in commercial production were apparently not met. However, a large majority of the participants will not receive a follow-up survey until next year, at which time a more reliable assessment of planned commercial production can be made. We feel that we will need to generate greater awareness of the potential for maple syrup production before significant commercial production is realized. This might best be accomplished through programming directed toward specific landowner and agricultural organizations.

**Beneficiaries:**

It is very early in the process to quantify the benefits derived from this project. The major accomplishment of the project was to begin to generate awareness and to establish the critical resources for the continued demonstration and promotion of maple syrup production in South Dakota. Ultimately, the beneficiaries will be both new producers and consumers in SD.

**Lessons Learned:**

Probably the most important lesson learned in conducting the project is that “you have to walk before you can run.” Our initial workshop invitation targeted specifically to potential commercial producers was unsuccessful, while a workshop open to the public that followed attracted 23 participants. This suggested that before we could populate commercial production workshops, we needed to raise the general awareness of producing maple syrup in SD. The news release/open invitation approach primarily used to publicize the workshops that followed were successful in attracting a broad audience, most of who were interested in hobby production. We plan to continue these more generally directed presentations, because the development of a strong hobby community may well be the catalyst for the development of viable commercial production. However, we suggest that as the level of awareness of syrup production improves, effort should be put into promoting maple syrup production to specific landowner and producer groups (South Dakota Specialty Producers Association, SD Local Foods Cooperative, Dakota Rural Action, SD Association of Conservation Districts, NRCS and RC & D Councils).

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## **Project 3**

**Title** – Growing & Marketing Hops in South Dakota

**Subgrantee:** Dakota Hops

**Contact Person** – Steve Polley | 605-642-7146 | no email address available

### **Previously Submitted Final Report**

#### **Project Summary**

Our commitment to demonstrating hops competitiveness as a specialty crop in South Dakota has been greatly facilitated the past three rounds by funding from the South Dakota Specialty Crop Block Grant Program. In phase three, our current phase, we examined the following: (A) Whether freezing hops either by cryogenic or by standard freezing is a feasible alternative to the industry standard of drying hops for preservation. (B) The Chemistry Department, Black Hills State University continued Alpha/Beta acid and hop storage index (HSI) testing to build a database for the 16 varieties of hops we currently grow on our test plot, and (C) we worked with microbreweries in South Dakota and in other states and home brewers to expand the use of our locally grown hops.

#### **Project Approach**

##### **Field Trials of Frozen Hops**

When we started the field trials for testing frozen hops in 2011 we did not know whether a frozen hop could be used for brewing. More than 10 home brewers in five states (South Dakota, New Jersey, Virginia, Texas and Colorado) and two microbreweries in South Dakota participated in the field trials using our cryogenically and conventionally frozen hops.

Over 100 test batches were tested from in 2011 - 2013 by both home brewers and microbreweries. The field trials included brewing identical batches of beer with the hops being the only variable. The tests were measuring for aroma and flavor of the hops. Microbreweries in Rapid City and Custer, South Dakota started brewing with frozen hops as home brewers an continue to brew with frozen hops at their new microbreweries.

The results from the field trials were conclusive: frozen hops produce a beer with more aroma and flavor than beer brewed with dry hops. This seems particularly so when the frozen hops are used in the dry hopping stage of brewing which is used to enhance aroma and flavor. We have received no negative feedback from any field trials.

In October 2012, one of the largest brewers in the U.S. asked to participate in our field trials. In January 2013 we shipped them 200 pounds of frozen Cascade hops which they used to conduct comparable studies by comparing frozen hops with commercially dried hops. The results are not final yet, but the production manager has stated that the beer made with frozen hops “has a very unique hop character and aroma.”

##### **Alpha/Beta Acid and HSI Testing**

The Alpha/Beta acid lab test conducted by the Chemistry Department, Black Hills State University follows the protocol established by the American Society of Brewing Chemists methods of hops analysis.

Hop resins are composed of two main acids called Alpha acids and Beta acids. The acids are expressed as a percentage of the total weight of the hop. The percentage of Alpha acids is of particular importance to brewers during the bittering stage of brewing and is closely monitored by hop farmers and brewers for brewing quality.

Appendix A shows the database of raw data collected from Alpha/Beta acid lab tests conducted by Black Hills State University on hops harvested in 2011 from our test plot near Nisland, SD, a test plot near Sioux Falls, SD and a farm from Idaho. The hops tested represented whole leaf, round pucks made by compressing ground hops and loose ground hops.

We have tested two varieties from the 2012 harvest. In addition, we tested Cascade hops from Idaho and 7 varieties from the 2011 harvest, all conventionally frozen. NO cryogenically frozen hops were tested from the 2011 crop because we lost them all when the freezer went out at the brewery where we had most of our hops stored. No cryogenically frozen hops were tested from the 2012 crop because we only harvested two varieties from our South Dakota plots. Spider mites got our South Dakota crop in 2012.

In total, we tested 10 varieties of hops representing whole leaf, round pucks (made by compressing ground hops) and loose ground hops.

Because frozen hops are a new product there is no comparable data to refer to, so the researcher must look for probable trends and relationships between dried hops and frozen hops.

#### Marketing of Hops

We participated in the 2011 Beerfest in Rapid City, SD in October 2011 but did not receive an invitation to attend in 2012. At the 2011 Beerfest, we marketed and promoted this new concept of using frozen hops (a different format other than the industry standard of dried) to the participants. Attending trade shows such as this one are the best way to show people the new products that are available. This benefitted the SD hop growers by opening up another potential avenue for selling their product and creating new customers for SD hops growers. Tradeshows such as this help us develop relationships with brewers and allow us to speak to those in the industry about the research we have been doing on hops, thus enhancing the competitiveness of this South Dakota grown specialty crop. Note that no SCBGP funds were used for participation in the 2011 Beerfest.

Freshly harvested Cascade hops were given to a local microbrewery in 2011 and 2012. It was considered a success by all participants because fresh hops have a unique aroma and flavor.

We have also marketed frozen hops to two other microbreweries in South Dakota and two out of state microbreweries in 2012. In 2013, we implemented a trial marketing trial with frozen hops in conjunction with a hop farm in Idaho. We purchased about 500 pounds of freshly harvested Nugget hops – they packaged the whole hops in 1 pound Mylar bags with nitrogen infusion then boxed and placed them in cold storage. Their sales staff with market the frozen hops to customers in Oregon.

This trial demonstrates that processing/freezing frozen hops on a commercial scale can be accomplished in a very short production cycle that provides optimum hop freshness required by the end customer.

A brewer from Nevada placed first in a regional beer contest with a beer he made with Dakota Hops' frozen hops. This shows that the quality of beer made from frozen hops is at least equal to the quality of beer made with dried hops.

### Goals and Outcomes Achieved

Goal	Target	Actual Results
Product development: produce a better brewing hop by freezing.	Consensus of brewers/public tasters.	No negative feedback has been received on frozen hops.
Establish Alpha/Beta and HSI database for 16 varieties of hops.	Complete database for all 16 varieties.	10 varieties were tested using three different formats resulting in 33 different tests
Market fresh and frozen hops to South Dakota microbreweries/home brewers.	4 microbreweries/local brew club using fresh/frozen hops.	15 home brewers or microbreweries have tested frozen hops.

We proposed using the Brewers Association Competition Standards as a possibility for a performance measure for this goal, but did not use it because of a lack of qualified judges in many areas. As a performance measure, we relied on an objective consensus of the brewers/tasters.

Note that because of crop losses in 2012 and 2013, some varieties of hops were unable to be tested.

### Beneficiaries

We have worked with at least 3 hops growers in South Dakota to provide this information to them (this is all of the commercial hops growers that we know of in South Dakota). These growers can now make an informed decision on whether freezing hops is the right choice for their operation or not. Because of this work, they can tell their customers (the brewers) that frozen hops is at least equal to the quality of dried hops.

The testing at BHSU has also provided valuable information on the Alpha/Beta levels of different hops varieties that can be grown in South Dakota. All growers in South Dakota's emerging hops industry can use this information when selecting which varieties to grow on their own operations.

### Lessons Learned

Through this project, we have learned that our process for freezing hops results in hops that are at least equal to the quality of beer made with dried hops. Conducting the blind taste tests provided us with invaluable information and was a great way to test our product against the conventionally dried hops.

### Additional Information

Database for Alpha/Beta acid and HIS Testing

**Appendix**

Name of Hops	Dry/Wet	Date Tested	alpha Based on WET weight			alpha Based on DRY weight			% water	
			beta	third	HIS	beta	third			
Brewer's Gold Whole Hops A	Wet	September 18th	2.41	1.35	0.02	0.20				
	Dry	September 19th	1.87	1.21	0.32	0.27	5.27	3.42	0.90	64.51
Souix Falls Chinook Whole Hop	Wet	September 24th	3.25	0.73	0.06	0.23				
	Dry	September 25th	4.05	0.91	0.05	0.22	11.59	2.60	0.13	65.09
Souix Falls Nugget Whole Hop	Wet	September 24th	3.30	0.96	0.14	0.24				
	Dry	September 25th	3.43	1.01	0.23	0.25	9.15	2.70	0.61	62.57
Idaho Cascade Whole Leaf A	Wet	September 26th	2.48	1.70	0.21	0.23				
	Dry	September 27th	2.73	2.02	0.22	0.22	7.79	5.77	0.64	64.93
	Wet	October 10th	2.22	1.57	0.00	0.19				
Idaho Cascade Puck A	Dry	October 11th	2.43	1.85	0.21	0.22	8.41	6.39	0.73	71.05
	Dry	September 27th	3.78	2.80	0.53	0.25	10.87	8.03	1.53	65.18
	Wet	October 1st	4.45	2.09	-0.24	0.17				
South Dakota Cascade Puck A	Wet	October 2nd	4.08	2.07	0.32	0.24				
	Dry	October 3rd	3.74	2.50	0.55	0.26	12.14	8.13	1.78	69.23
	Wet	October 4th	3.97	2.20	0.24	0.23				
South Dakota Cascade Puck A	Dry	October 9th	3.22	2.16	0.24	0.22	12.35	8.29	0.93	73.92
	Wet	October 30th	3.05	1.86	0.22	0.23				
	Dry	November 1st	1.71	2.01	0.27	0.23	6.29	7.40	0.99	72.81
South Dakota Cascade Puck A	Wet	October 2nd	2.21	2.20	0.30	0.23				
	Dry	October 3rd	1.70	2.53	0.59	0.27	4.09	6.10	1.43	58.50
	Wet	October 4th	2.06	1.98	0.25	0.23				
South Dakota Cascade Puck A	Dry	October 9th	1.47	2.01	0.26	0.23	4.27	5.83	0.76	65.53
	Wet	October 31st	2.98	2.87	0.06	0.19				
	Dry	November 1st	1.93	3.28	0.56	0.25	4.19	7.12	1.21	53.88

Cascade Ground A	Wet	October 15th	1.90	1.72	0.02	0.19													
	Dry	October 16th	1.81	1.81	0.48	0.28	4.52	5.88	1.57	69.29									
	Wet	October 17th	1.74	1.86	0.04	0.19													
	Dry	October 19th	1.34	2.02	0.58	0.30	4.07	6.17	1.76	67.18									
	Wet	October 22nd	1.88	1.75	0.13	0.21													
	Dry	October 23rd	2.81	1.53	-0.18	0.16	7.15	3.90	-0.45	60.62									
2012 Brewer's Gold Ground A	Wet	November 5th	0.56	1.47	2.88	0.88													
	Dry	November 6th	0.24	1.42	2.61	0.93	0.87	5.23	9.59	72.83									
2011 SD Mt. Hood Flats Groun	Wet	November 7th	2.18	1.60	0.60	0.30													
	Dry	November 9th	1.98	1.20	0.14	0.23	7.22	4.36	0.49	72.51									
2011 SD Willamette Whole Le	Wet	November 8th	2.49	1.16	0.14	0.23													
	Dry	November 9th	1.95	2.26	0.90	0.33	5.65	6.54	2.62	65.50									
2011 SD Glazier Pucks Ground	Wet	November 13th	2.22	1.59	0.25	0.24													
	Dry	November 14th	2.46	2.51	0.61	0.27	6.34	6.46	1.57	61.18									
2011 Centennial SD Ground Un	Wet	November 13th	2.81	1.38	-0.42	0.12													
	Dry	November 14th	1.50	1.18	0.44	0.31	5.45	4.28	1.60	72.49									
2011 SD Mt. Hood Flats Groun	Wet	November 19th	2.19	1.59	0.61	0.31													
	Dry	November 20th	1.81	1.12	0.14	0.23	7.12	4.43	0.53	74.59									
2011 SD Willamette Whole Le	Wet	November 19th	2.40	1.25	0.16	0.23													
	Dry	November 20th	1.48	1.80	0.71	0.33	5.52	6.68	2.66	73.10									
2011 SD Hallertau A	Wet	November 27th	0.15	1.90	1.15	0.51													
	Dry	November 28th	0.44	1.61	1.11	0.51	1.44	5.25	3.60	69.25									

2011 SD Brewer's Gold Whole		Wet	November 27th	1.46	1.44	0.18	0.23												
		Dry	November 28th	2.01	2.63	0.36	0.23												
		Wet	December 4th	1.08	1.06	0.11	0.22		3.89	5.11	0.70	48.41							
		Dry	December 5th	0.62	1.14	0.64	0.42		2.51	4.61	2.59	75.33							
2011 SD Chinook Pucks A		Wet	December 4th	4.01	1.07	0.29	0.25												
		Dry	December 5th	2.92	1.01	0.72	0.34		9.98	3.45	2.46	70.69							
2011 SD Mt. Hood Flats Group		Wet	January 14th	2.21	1.63	0.62	0.31												
		Dry	January 15th	1.49	1.76	0.72	0.34		5.33	6.32	2.59	72.12							
2011 SD Brewer's Gold Whole		Wet	January 14th	1.13	0.88	0.21	0.27												
		Dry	January 15th	0.75	0.65	-0.28	-0.19		2.93	2.53	-1.09	74.45							
2012 Idaho Cascade Pucks Grc		Wet	January 16th	3.04	1.95	0.13	0.21												
		Dry	January 17th	1.70	1.76	0.31	0.25		7.12	7.40	1.31	76.17							
2011 SD Glacier Ground Puck		Wet	January 16th	2.23	1.52	0.19	0.23												
		Dry	January 17th	1.65	1.67	0.37	0.26		5.95	6.02	1.33	72.27							
Cascade - ID Whole Leaf 12-4		Wet	January 23rd	3.87	1.90	0.19	0.22												
		Wet	January 23rd																
Cascade - ID Ground Bulk 12-4		Wet	January 23rd	1.95	1.68	0.49	0.28												
		Wet	January 23rd																
ID Cascade A		Wet	January 30th	1.82	1.48	0.35	0.26												
		Dry	January 31st	1.32	1.78	0.41	0.27		5.27	7.06	1.64	74.85							
SD Cascade A		Wet	January 30th	1.10	2.49	0.59	0.28												
		Dry	January 31st	1.61	2.63	0.65	0.28		4.13	6.76	1.67	61.04							
Brewer's Gold 2012 A		Wet	February 1st	1.61	1.61	0.17	0.22												
		Dry	February 4th	1.03	1.43	0.20	0.23		3.98	5.56	0.78	74.22							

Mt. Hood 2011 A	Wet February 1st	2.33	1.84	0.73	0.31															
	Dry February 4th	1.52	1.73	0.78	0.35															
	Wet February 21st	4.20	1.02	0.37	0.27															
	Dry February 22nd	1.48	1.73	0.70	0.33															
2011 ID Cascade A	Wet February 5th	1.33	1.44	0.43	0.29															
	Dry February 6th	0.65	1.80	0.67	0.35															
	Wet February 14th	1.28	1.43	0.69	0.36															
	Dry February 15th	1.13	1.45	0.65	0.36															
2011 Chinook A	Wet February 5th	4.10	0.94	0.13	0.23															
	Dry February 6th	2.73	1.05	0.72	0.34															
	Wet February 21st	2.70	2.19	0.77	0.30															
	Dry February 22nd	3.13	1.00	0.49	0.29															
2011 Glacier A	Wet February 11th	2.15	1.56	0.31	0.25															
	Dry February 12th	2.05	2.34	0.55	0.27															
	Wet February 14th	2.29	1.92	0.45	0.26															
	Dry February 15th	2.54	2.02	0.59	0.28															
2011 Talleyhau A	Wet February 11th	0.83	1.20	1.07	0.52															
	Dry February 12th	0.18	1.30	0.80	0.50															
SID Cascade 2012	Wet February 26th	5.05	4.96	0.76	0.24															
	Wet February 26th																			
2012 Brewer's Gold	Wet February 26th	2.29	2.46	0.38	0.24															
	Wet February 26th																			

## **Project 4**

**Title** – South Dakota Local Food Online Marketplace Central Ordering System

**Subgrantee** – Value Added Ag Development Center

**Contact Person** – Cheri Rath | 605-350-3128 | cherirath@yahoo.com

### **Final Report**

#### **Project Summary**

VAADC focused on better serving the needs of specialty crop growers, buyers, food processors and consumers. Our goals were to leverage the access of specialty crop buyers to the real time production capacities of small, medium and large specialty crop growers.

We found large and medium sized institutional and retail specialty crop buyers generally purchase their fresh fruits and vegetables from single or limited number of vendors. This single purchase point desire creates a gap between the daily needs of buyers and availability of sufficient produce from growers. Creating an “online specialty crops marketplace”, was intended to provide a relatively inexpensive and accessible buying and selling option to enhance specialty crop marketing and distribution capabilities. However during the course of our project we found growers needed to enhance their own operations and recognized the ability of them to collaborate by forming a cooperative to share production and processing resources may better position them to meet criteria of institutional buyers both online and in other marketing avenues. Project tasks resulted bringing 5 growers together to initiate development of a Vermillion Cooperative entity. This can be duplicated to accomplish statewide infrastructure for market of specialty crops.

#### **Project Approach**

##### **Step #1 - Outreach**

VAADC is gaining inquiries on progress of online marketing concept and interest in participating. There are approximately 85 growers throughout the state interested in this concept as an alternative market. These new specialty crop project partners will provide additional leverage to increase project outreach.

VAADC is very active at the South Dakota State Fair to promote specialty crop value added agriculture. This promotion effort has increased consumer and institutional buyer participation in relationships and planning.

VAADC is also active in field tours conducted by South Dakota Specialty Producers Association (SDSPA). Many producers attend these events and discuss marketing issues. The insight from these discussions has contributed the development of a wholesale system in South Dakota.

## Step #2 – Eligible Participant Identification

While interest spans the state, our initial efforts are targeted to three areas:

Vermillion – 8 grower participants identified

Freeman – 5 grower participants identified

Hot Springs – 5 grower participants identified

## Step #3 – Registration Process

Two growers have met current registration criteria to participate. A cooperative business plan has been initiated with anticipated wholesale fruit/vegetable prices defined by product, quantity/grade and price; in addition site feasibility assessment is being conducted. This business plan will be used to attract additional growers. Many growers are hesitant/cannot commit to production quantity which is required for wholesale/institutional markets. An approach to get participation is a survey to identify specialty crops currently in production in South Dakota. This survey will also provide inventory of the larger producers in the state. Each survey will be discussed with the producer to identify any crops suitable for the wholesale market.

We are also evaluating training availability (such as GAP) as it fits with registration criteria. This is in partnership with many other supporting organizations in South Dakota.

## Step #4 – Buyer Identification

Continue communication with buyers to understand needs and requirements of institutional marketing. Seek input from committed buyers as product availability sheets become available, including communication with Aarmark, CBM Foodservice, LunchTime Solutions, SD Dietary Association (nursing homes) and HyVee Food Stores. These potential buyers will provide advisory type committee to make recommendations for the Online Marketplace.

Institutional buyers are now motivated by healthier food choices and specialty crops are a healthy food choice. The identified buyers are ready to participate in planning meetings to explore options and possibilities to deliver specialty crops from the farm to the institution, as soon as the producer inventory is completed.

Goals & Outcomes Achieved Goal	Performance Measure	Benchmark	Target	Outcome
1. Online Marketplace concept grower outreach – education	Number of growers contacted	0	40 growers	75 growers
2. Identify eligible grower participants	Number of grower participants secured	0	20 growers	5 growers

3. Grower registration	Grower completion of business plan module / GAP training / other registration criteria	0	17 growers	2 growers
4. Online Marketplace outreach – education to target buyers	Number of buyer participants secured	0	10 buyers	2 buyers

### Lessons Learned

Multiple unanticipated delays were encountered with rent negotiations and then findings that the initial proposed site was ultimately not suited in size or zoning regulations for the proposed Vermillion Grower Coop. At that time we stopped using grant funds until a new location was identified and we could again determine how to target growers. The current project is the producer survey to create product inventory.

### Beneficiaries

Growers – Initially estimates were to reach 40 growers during the duration of our project, we actually engaged with 75 of them regarding the concept of an online marketplace and how their operation might participate. Our experience showed only 5 growers (less than the 20 projected) would currently be in a position to participate. This translates into a need to engage partnering agencies, such as South Dakota State University Extension and Dakota Rural Action, in production education. The use of the cooperative entity was also identified and an option to assist them via a sharing of resources and aggregation of fresh and value added specialty food product.

Buyers – Our target was to educate buyers on the online marketplace concept. Our reach was limited due to reported project delays. However we were able to have in-depth conversation with 2 institutional buyers who remain interested in following the project. They were also willing to assist us with some development information such as product pricing.

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### Additional Information (if applicable)

Future plans are to build-out Vermillion Grower Coop business plan based on new site. Focus on grower registration through engagement of steering committee. Develop a specialty producer list and an inventory of specialty crops available for institutional sales. Conduct planning meetings to connect the specialty crop producers with the institutional buyers and develop strategies to deliver the products from the farm to the

institution. Continue work with REC consumer board to unify directors, identify gaps and find answers for feasibility assessment utilizing steering committee/members; legal structure/bylaw status; membership/funding options including targeting growers again; grower supply/store market plan to foster consumer access.

## **Project 5**

**Title** – Website Development for the South Dakota Specialty Producers Association

**Subgrantee** – South Dakota Specialty Producers Association

**Contact Person** – Dave Greenlee | 605-594-6287 | dave@tuckerswalk.com

## **Final Report**

### Project Summary

- Website presence is needed to communicate more effectively with association members, provide critical information to the general public to enhance and increase production of specialty crops in South Dakota.
- Develop website structure and provide current information to association members and the general public. Website will allow the association to develop and update information for posting to website, have the capability to maintain information and update information in timely manner, and respond to changing association communication needs.

### Project Approach

- SDSPA's goals:
  - Develop cooperative marketing opportunities.
  - Serve as a venue for networking and information gathering.
  - Market agritourism.
  - Promote South Dakota product identity.
  - Offer educational programs.
  - Support research.
  - Work with legislators and policymakers.
  - Partner with other organizations on common goals.
- A website presence is critical to effective and timely information sharing with members and the public to fulfill the association's goals. Information from the association, members, and partners is posted in a timely manner to increase awareness and participation in association and partners' marketing, networking, and educational efforts.
- During the course of the grant work, a website contract was initiated with a web provider specializing in small agricultural businesses. The website was developed, populated, and updated as needed. Most recently, a website upgrade was contracted which provides additional 'Farmer Defined Pages' for promotion of individual association members' businesses as well as providing additional capability for posting photos. These enhancements, as well as the website and development work, were financed by the Specialty Crop Block Grant over the course of three (3) years.
- The website is designed to be hub for communication among association members as well a means for showcasing our members' products to the public. Website work has included website proposal development; website contract development and implementation; writing, editing, and formatting of all web information; posting of association communication and upcoming events; development of posting capability to publicize partnership efforts; adding links to documents, conference handouts and videos, and links to Face book and other

communication tools; and the addition of membership promotion information (Farmer Defined Pages (FDP)).

- Project partners included an independent contractor who conducted the most of the website review, updating, conversion to new format, member FDP development, and communication with another contractor (for membership services) to ensure complete, accurate and timely posting of association and member information. These partners communicated well together and worked to develop ideas for future web use and expanded communication tools.

#### Goals and Outcomes Achieved

- During the course of the grant work, a website contract was initiated with a web provider specializing in small agricultural businesses. The website was developed, populated, and updated as needed. Most recently, a website upgrade was contracted which provides additional 'Farmer Defined Pages' for promotion of individual association members' businesses as well as providing additional capability for posting photos. These enhancements, as well as the website and development work, were financed by the Specialty Crop Block Grant over the course of three (3) years.
- Research on individual member businesses and personal interviews with the member were done by a contractor during development of their FDP content; some on-site work was done including photography to include on the FDP. Currently 23 member businesses are featured on the website, up from the original 7 businesses that were promoted.
- Site maintenance and inventories were conducted to assess current site content. Additional materials were developed and/or posted in response to communication needs, member requests, and leadership direction.
- Due to changes experienced during our website upgrade, extensive updates were required to the format and design of the website pages. Increasing our capacity and capability to communicate with members and the public resulted in extensive review, reformatting and reposting work to be done.
- This year, additional & expanded information about breaking news reports and upcoming events was posted to the site. Based on feedback from members, handout and video information from association sponsored conferences and meetings is being posted to the site.
- Membership information and application are now posted to the site.
- Maintenance of the site includes researching, updating and adding content on all existing pages as needed, including photography shooting for updated member information. All links are periodically tested for accuracy. Conducted Bing and Google searches to verify high search engine rankings for association information and member FDPs. The member FDPs also include pertinent links to their business websites, blogs and social media sites.
- Contractor conducted site maintenance and inventory work and provided updated information to association leadership. Contractor has temporarily reserved historical content from deleted pages for future reference.
- Site statistics are compiled periodically for information and analysis.
- The number of association members has increased beyond the original projections that were used in contracting for the website FDP capability. As a result, we have significantly upgraded the site service at a minimal cost which results in a better value for the association and better service for the members.
- Over the past few years, additional social media tools have been developed and available for wide-spread public use. In response to member interest, the association

website now has links to several of these tools and continues to include pertinent links on the FDP as requested by the members. The addition of association presence on Face book is an example of this increased social media presence.

- Site statistics have been utilized to assess interest and use of the website. Early data are not available but we have included statistics (attached) regarding website use since March 2013 to June 2014. During 2012 and 2013, monthly website hits ranged from 135 in May 2012 to a high of 2500 in September 2013. We upgraded our website in 2014 and have seen significantly increased numbers of hits, from 3414 in January 2014 to a high of 3761 in June 2014 (just prior to the expiration of this grant). Increased website hits translate into increased access to association and member information. This increases networking, educational information sharing, and promotion of specialty products and their providers.
- As technology developed over the course of the grant work, we did not conduct an online survey as apparently anticipated in the original project design. Our contracted web master took advantage of improved technology to document website use through counting web 'Hits' that were initiated by both members and the public. Areas of the website of particular interest to members were their own, and other members', website 'Farmer Defined Pages (FDP)'. In the two years just prior to the grant expiration, access to the SDSPA website has increased over 350%. In addition to providing the FDP's, we also include links and materials from recent educational & networking events such as the 2013 SD Local Foods Conference and the recent 'Food Hub' video meetings. We have received verbal, though unfortunately not written, appreciation from members regarding the ready & electronic availability of these resources.

#### Beneficiaries

- Association members have benefited from the website work by receiving a free FDP for their individual operation. The FDP includes information about the member, their business, and links specific to their business.
- Association leadership has benefited from the website by increasing the ability to communicate with members and the public in a very timely manner to present upcoming and current events as well as posting pertinent resource information from past events.
- SD Cooperative Extension Service is an active partner with the association and benefits from the website posting of the materials from sessions that they have provided or presented during association educational activities. They also benefit from the posting of upcoming mutually beneficial events and educational opportunities.
- Information is shared electronically between the association and the Northern Plains Sustainable Agriculture Society (NPSAS) to promote mutually beneficial grant opportunities, educational events, and networking opportunities.
- The upgraded website has seen a significant increase in the number of hits which results in increased numbers of individuals who have access to partnership information, which directly benefits all partners.
- It is anticipated that increased web traffic will result in additional marketing opportunities by association members and also increased knowledge due to awareness & participation in publicized educational events. At this time, no metrics are available to substantiate this expectation but may be gathered in the future.
- Currently 22 association members have responded to the offer to showcase their businesses and products on the free FDP pages. Our contract web master was working with these individuals to add and improve the information on their FDPs. This work

came to a halt when the grant expired. In the past, limitations of the website host allowed SDSPA to offer only 7 members access to the FDP's on a rotating basis. Through work by the contract web master, we were able to negotiate a minimum cost upgrade to our website service, thus increasing the number of association members with access to FDPs. Future work, depending on funding and contractor availability, will be targeted to continuing development of individual FDPs and expansion of the number of members who utilize this free resource to market their businesses & products, as well as network with other members.

- Based on past association membership records, and an estimate of previous work done by the contract web master, and an estimate of non-renewing members who took advantage of the FDPs, we estimate approximately 30-35 businesses have taken advantage of this free resource. In addition to the FDPs, association members often have their own personally-funded business websites. Links to these websites, and related resources, are included in the free FDP pages at the discretion of the association member.
- Based on statistics from general SDSPA website access, we estimate over 3000 hits have been made just this year by people interested in our organization and especially in the products and resources available on the Farmer Defined Pages.

#### Lessons Learned

- Electronic information sharing can be kept current but requires diligent and skilled work to ensure that interpersonal communications are current & effective; that the posting work is done in a timely manner; and that the web worker constantly is increasing their personal knowledge & skills regarding social media communications tools and their capabilities in order to capably support the association's efforts. These skills and ability to provide the work products needed are often not found within a group's membership. It is anticipated that capable web support must be a specifically funded activity in order to fully execute the association's goals in electronic communication.
- While the website is a valuable tool for communication, any changes, even something as minor as font changes, can cause a ripple effect in site design that can require significant staff resources to complete.
- An unexpected outcome of providing free FDP marketing promotion for association members was the interest by potential members who then became paid members in order to take full advantage of this marketing opportunity.

#### Contact Person

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#### Additional Information

- SDSPA website: <http://www.sdspecialtyproducers.org/>
- Attachment: Website statistics, 2012 to 2014.

## **Project 6**

**Title** – GAP (Good Agricultural Practices) Training

**Subgrantee** – South Dakota State University

**Contact Person** – Rhoda Burrows | 605-394-2236 | Rhoda.burrows@sdstate.edu

## Final Report

### **Project Summary**

Safe food production practices are an issue that South Dakota producers will need to address in order to grow beyond marketing at Farmers Markets, to institutional or even wholesale markets. Third party certification of safe growing practices is required by increasing numbers of buyers, but very few South Dakota growers (3 at the time this proposal was submitted) have been certified. One certification available is USDA "GAP" certification, and training is being provided in various forms across the country. We proposed to provide interested growers as well as extension personnel a two-day training, with the second day focused on writing GAP farm plans. The growers would then be able to prepare their own operations for inspection for GAP or similar certification. Even if an attendee does not pursue third-party certification, he/she will be better able to provide safe food to any of the markets they sell to, including farmers markets or CSA's.

### **Project Approach**

#### **GAPs Workshops:**

- A full-day GAP training was held in Huron, SD November 2011, presented by Ms. Michele Schermann, University of Minnesota Food Safety team member. The morning session educated 26 producers on how to implement GAPs, and what is necessary for a successful USDA GAP audit. Topics included an overview of a farm food safety plan, explanations of the template forms for documenting the food safety plans, and examples, and all attendees received USB drives and DVDs with all the information and forms to use in their operations. The afternoon session helped a smaller number of individual producers to begin filling out their plans.
- In May 2013, at the request of the Black Hills Farmers Market Association, a "Food Safety for Producers" workshop was held in Rapid City, with closed-circuit TV connections in five additional locations across South Dakota. Dr. Burrows presented information on the FSMA and on GAPs, and Dr. Joan Hegerfeld-Baker presented information on the disease organisms of concern, food processing regulations, and safe food handling for producers and vendors. Over 30 prospective or current producers attended the workshop; attendees also received food safety publications.

#### **Other GAPs presentations:**

- Dr. Burrows presented GAP principles at two high tunnel workshops in 2012, with over 90 attending; and in 2013 to farmers market and direct marketer audiences. She presented information via closed-circuit TV to 48 "food entrepreneurs" on safe post-harvest produce handling, and an update on the Food Safety Modernization Act and basic safe food production practices at the SD Specialty Producers Association workshop.

#### **GAPs publications and articles**

- "Food Safety Practices for Growers", a brochure outlining GAPs principles for small-scale producers, was developed and printed in 2014. 2500 copies are currently being distributed across the state.
- "Food Safety" - S. Blachford, J. Hegerfeld-Baker, and R. Burrows  
<http://igrow.org/community-development/local-foods/food-safety/>

- “Food Safety for Growers: Production”- S. Blachford and R. Burrows, <http://igrow.org/community-development/local-foods/food-safety-for-growers-production/>

### Goals and Outcomes Achieved

- The growers who completed the full GAPs training in 2011 reported finding it very helpful. Two of the larger-scale producers who took the training indicated that although they have not since completed a GAP plan, they have made changes to their operations to significantly improve their safety practices. One commented, *“Our operation is 10 times better for having attended the training.”* The other indicated that they are writing plans for specific products, do more employee training, and have changed their cleaning practices. She indicated a need for help in translating their practices into writing for the GAP plan.
- Although the other presentations were not full GAP training, they provided producers with an overview of practices they need to review on their own operations, and as well as a list of resources to learn more about both farm food safety and GAP certification. One vegetable grower who sprinkler irrigates plans to chlorinate his irrigation water (obtained from a stream) as a result of attending one of these presentations; others indicated changes in handwashing, etc.
- A survey of the May 2013 workshop attendees revealed that 30% of them had not previously learned about GAPs training, while almost 50% of them had learned about GAPs from extension; only 10% had learned about it from the USDA or FDA websites. *50% of the respondents indicated they “strongly agreed” and an additional 38% “agreed” that the workshop increased their knowledge of organisms that cause foodborne illness.*

Half of the respondents at the workshop did not currently sell produce, but were either planning to, or worked in a support capacity to the industry (state government, extension, etc.). Of those respondents currently growing produce, *all indicated they were already or now planned to informally review their farm operation for practices they needed to change, would improve their own and their employees/helpers hand-washing practices, and make changes such as cleaning surfaces frequently, reviewing safe food handling practices with their employees, etc. In addition, all the respondents currently growing produce indicated that they would carry out a self-audit using the materials referred to in the workshop.*

A followup mailing was prepared for the attendees in August, including a summary of the information presented at the workshop. Fifty percent of those contacted responded, and *they all indicated that they had “advised/encouraged” others to evaluate specific food safety influences in their operations (eg., water source, containers, produce handling, hand washing, etc.), as well as reviewing/ changing their own specific practices as applicable.*

GOAL	PERFORMANCE MEASURE	TARGET	Actual
Producers receive GAP training	# who attended a GAPS workshop	12	46 current or prospective producers
Educators are prepared to assist with GAP training	# who complete training	4	3
Producers gain information about GAP practices	Presentations (not full workshop)	Not set	60+ producers
Producers make significant food safety enhancements to their	Grower survey	12	All respondents (17) report changes

production practices			
Producers complete a GAP plan for their farm	# who complete plan	6 (initial)	Unknown (none certified by USDA or Primus Labs)

### **Beneficiaries**

- Over 60 fruit and vegetable producers gained knowledge to increase the safety of their produce.
- Buyers and consumers will benefit by having a safer food supply

### **Lessons Learned**

After the initial workshop, we determined that most of our growers are not interested in obtaining GAPs certification, but are interested in improving their food safety practices, and in knowing what expectations might be in the future. Thus we adjusted our approach to provide this information in as many grower venues as we could, with referrals to excellent templates, etc. available from multiple sources online.

### **Contact Person**

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### **Additional Information**



### Cleaning Produce

- Do not wash produce unless necessary – washing increases possibility of cross-contamination
- All water used for washing should be potable (drinkable)
- When possible, use a pass-through rinse to avoid cross-contamination
- If produce is washed in a tank, use appropriate levels of sanitizer\* and change water frequently
- Avoid tank water temperatures that are more than 10°F cooler than the produce temperature

\* See references for more information on materials and rates for specific crops

### More Information:

Available at *iGrow.org*

- **Best Practices for Use of Produce Containers**
- **Storage of Fresh Vegetables**
- **Vegetables and Herbs** (includes post-harvest and food safety links)

### Other Sources:

- **Food Safety Modernization Act**  
<http://www.fda.gov/Food/GuidanceRegulation/FSMA/default.htm>
- **Good Agricultural Practices**  
<http://www.extension.umn.edu/rspd/community-and-local-food/good-agricultural-practices/>



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# Food Safety Practices for Growers



South Dakota State University, South Dakota counties, and USDA cooperating. South Dakota State University adheres to AA/EEO guidelines in offering educational programs and services.

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Fresh produce is vulnerable to contamination by harmful microbes, as shown by outbreaks of Salmonella or Listeria or other pathogens on tomatoes, leafy greens, melons, etc. You can reduce the risk of your produce carrying harmful microbes by using safe production "Good Agricultural Practices" and post-harvest practices that are outlined in this brochure.

Each producer should evaluate their operation for possible entry points of contamination – from planting thru selling it at the market. Keep in mind that pathogens can survive for several months in contaminated soil, plants, or water.

Consider each of the following factors:

#### Water source

- **Surface water**, such as ponds, lakes or creeks, has a high risk of contamination via wildlife or upstream livestock use. Avoid use of surface water for overhead irrigation, or for drip irrigation of low-growing crops such as salad greens. It is relatively safe for subsurface drip irrigation, as long as there is no ponding or flooding.
- **Well water** should be tested at least at the beginning of each growing season, more often if well integrity or recharge area is in doubt.
- **City or rural water systems** supply potable (drinkable) water that is routinely tested to ensure its safety.

Only *potable* water should be used for post-harvest washing, cooling, icing, or other processing.

#### Manure

Fecal matter is by far the most common source of harmful microbes.

- Aging manure for at least 180 days at temperatures above freezing before application will help limit pathogens present in the manure, and decrease salt levels in the manure. New food safety rules stipulate that any raw manure should be applied *not less than 9 months before harvest date*. Keep records of all manure application rates, source, and dates.
- Avoid producing fresh vegetables in areas that have a history of heavy wildlife use, unless fencing can exclude access.
- Avoid using fields next to or downhill from livestock grazing/feeding areas.
- When possible, exclude domestic pets as well as wild animals especially from sensitive crops such as salad greens or green onions, as well as from packing, processing or storage areas.
- Watch for animal droppings in the field. Mark any that are found and do not harvest produce from their immediate vicinity.
- Do not place manure piles near production fields or processing areas.
- Keep produce off the ground at the market.

*Keep in mind that insects, birds, and other animals can carry contaminants from a waste pile or livestock area to clean fresh produce.*

- Any vehicle used to transport animals should be thoroughly disinfected before hauling produce and/or a barrier such as a clean tarp placed to isolate the surface from produce containers.

#### People: Farmers are Food Handlers!

Follow food handler guidelines when harvesting or working with produce.

- Field workers should always wash their hands before entering the field.
- Don't wear clothes or shoes soiled from working with animals into produce fields or handling areas.
- Don't allow anyone to work in the field or processing area if they are sick.
- When handling produce, wash hands frequently and make sure your workers do too!
- At the market, change gloves between handling money and handling produce.

#### Equipment

Dirty equipment has been the source of foodborne illness. Make sure yours isn't:

- Use containers that are either single use or can be cleaned and then sanitized between each use.
- Never place bruised or damaged produce in the same container as good produce; cross-contamination is likely.
- Clean and sanitize all packing and loading surfaces before and after use, and every four hours with continued use.
- Don't overfill harvest bins (bruising can result and be an entry point for disease)
- Never re-use grocery bags for produce sales.
- Don't store cleaned bins in an area where birds or other animals can contaminate them.
- Don't allow water to stand in processing or storage areas.



06-1000-2014

## Project 7

**Title** – Lakota Ranch BFR Farmers Market

**Subgrantee** – Lakota Ranch, Beginning Farmer/Rancher Program

**Contact Person** – Steve Hernandez | 605-454-2218 | [steve.hernandez@gwtc.net](mailto:steve.hernandez@gwtc.net)

### Final Report (Previously Submitted)

#### Project Summary

The number of gardens that reservation residents have planted has decreased over the years. This has a detrimental effect on the local population because the benefit of fresh vegetables and exercise (planting & maintaining garden) is not shared by all. Other factors that discourage eating of fresh vegetables are the availability, high cost and convenience.

The goal of this project was to make fresh vegetables readily available to all local residents. We did this by providing education on gardening, purchasing convenience, and affordability of vegetables.

Most of the produce provided at the farmers markets were from the BFR's own vegetable gardens. We also worked with interns in 2012 to manage our gardens and we saw those same

interns have success in managing their own gardens in 2013 and selling produce at the farmers market to increase their family's income.

### **Project Approach**

The BFR program had a very busy and productive project with a number of performance goals reached. We started off in February 2012 with our garden preparation workshops/classes and meet weekly throughout the growing season covering time relevant garden topics.

We assisted in starting two community garden clubs, where we presented gardening information and answered questions as needed.

We started with the help of our partnering organizations and interns 7 gardens. The BFR garden located in Batesland, and the Oyate Teca youth center garden located in Kyle was where the majority of the instruction was held.

In addition, we partnered with Oglala Lakota College Ag department to hold weekly preservation workshops.

We set up a number of farmers markets throughout the reservation this summer. Our main market was located in Kyle at the Oyate Teca youth center this was opened daily M-F and some Saturdays depending if we were setting up elsewhere. We also helped or sent produce weekly to the farmers market set up by Lakota Funds in Cactus Flats SD.

Depending on availability of produce and personnel, we tried to set up in Pine Ridge at least three times a week. We also attended district fairs held across the reservation which were most weekends throughout the late summer.

We were able to receive a wireless SNAP (EBT) machine that allowed us to accept snap benefits and debt purchases. We did not receive the machine until later in the season and we had only the one machine so this limited us to how long and the number of locations we were able to make this purchasing method available.

In 2013, we established one permanent farmers market location in Kyle, SD. We also set up farmers markets at local fairs and weekend events. A travelling farmers market as we did in 2012 became too cost prohibitive.

In 2013, some of the previous interns from 2012 were able to grow their own produce using what they learned during their internship. These former interns then brought their own produce to the farmers market and have started creating their own income. Other gardeners have also had success and have started bringing produce to the farmers market. More plan to attend the farmers market in 2014.

The BFR program has partnered with others in the community to host weekly preservation classes. We focus on canning, freezing and dehydrating fruits and vegetables. We have featured preservation of tomatoes, green peppers, cucumbers, zucchini, and beets. We teach not only how to preserve these products but how to make meals with the preserved foods. People have even started requesting certain classes.

We started out the year with a number of items that put limitations on what we could provide for the program. We did not have the facilities to house our starter plants, the greenhouse we did

have was not heated and in need of repair. Also we did not have adequate storage facilities once we did harvest. Further, we did not have suitable canning facilities.

With the help of a number of our partners we were able to address these needs. National Relief Charities and the Church of the Atonement were able to provide materials and labor to construct a canning kitchen addition to the youth center in Kyle and a storage cellar. Not only did these additions address our requirements but we were able to use the activities as teaching experience to show how this can be achieved.

In addition NRC provided us with a heated greenhouse that we were able to construct but not really put into use this growing season. But it will allow us to start earlier next year which will make us more productive as well as being able to make starter plants available for others.

Another partner, Lakota Funds, worked with us in a number of ways. They provided a matching loan grant program to interested individuals who wanted to start gardens. This program was part loan and part grant with individuals required to pay back only the loan. This program was in demand and available slots filled up fast. We made our gardening workshop schedule and information available to the loan grant participants and we promoted the program with our students. We had a couple of our students that did receive the grant/loan from Lakota Funds.

Also we participated in the Lakota Funds farmers market held weekly in Cactus Flats.

### Goals and Outcomes Achieved

Goal	Performance Measures	Benchmark	Target	Achieved
Garden instruction workshops	Number of participants	0	50	We had 619 individuals sign in for garden instruction workshops held throughout the reservation.
Internship/hands on training of 4 people on how to manage their own garden and have them sell at the farmers market next year	Having the 4 interns have a garden for themselves and sell their produce at the farmers market next year.	0	4	4
To put in 6 gardens with help from local organizations	Successful harvest	0	6 successful gardens	7 successful gardens put in with assistance from the BFR program
Have two successful farmers markets	Have farmers markets up and running by end of June (first harvest)	0	Two successful farmers markets to run through the summer growing	1 FM 5 days wk (Kyle) 1 FM 3 days wk (Pine Ridge) 1 FM 1 day wk (Cactus Flats)

			season	
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**Beneficiaries**

Many people have truly benefitted from this project. Our original goal was to reach 50 people with gardening workshops. We had 619 sign in for garden instruction workshops held throughout the reservation. We also had 4 interns in 2012 that helped manage our garden and sell at the farmers market. In 2013, those former interns were tending their own gardens and selling their own produce at the farmers market, creating an income for themselves and their families.

**Lessons Learned**

We had some trouble with weather this season with a number of hail and wind storms coming through our area. The most damage we had was to our Batesland garden where we lost a number of crops. We replanted where we could and in some cases more than once. But our yield and cost were both negatively affected. We plan on addressing this situation next year by having more garden plots and not putting all of one variety of produce in one location. By having more growers and identifying the popular products and making sure we will have the availability. Due to the mild winter last year we had a big insect problem. We didn't really lose any product but it was time consuming taking care of the problem. Next year we plan on starting earlier which means our plants will be even bigger then this year and have a better chance to fight off insects. As well as putting in more barrier crops to make it harder for insects to reach our crops.

Travel logistics was another area we struggled with since the reservation is so big (100 miles by 60 miles) getting produce and farmers markets to all the locations was an effort. Not to mention the cost of fuel being another prohibitive factor. In addition, having personal to help with transportation and manning of the farmers market was added concern since funds were limited on providing these services. We plan on solving this by limiting our area, number of markets, and focusing on date and locations that had the best turn out and participation. And by using the youth center in Kyle as our primary location we cut down on the need for personnel since there are staff and volunteers that help with market effort there.

**Project 8**

**Title** – Healthy South Dakota Fruit & Vegetable Project

**Subgrantee** – South Dakota Department of Health

**Contact Person** – Larissa Skjonsberg | 605-773-2171 | larissa.skjonsberg@state.sd.us

**Final Report (previously submitted)**

**Project Summary**

At the close of 2010, the prevalence of overweight and obesity showed a slight increase in South Dakota adults while the nation showed a decrease. Research indicates that a diet rich in fruits and vegetables decreases the risk of obesity and other chronic diseases. According to the 2009 South Dakota Behavioral Risk Factor Surveillance System survey, only 15.7 percent of South Dakotans ate even the minimum amount of fruits and vegetables. The Centers for Disease Control and Prevention (CDC) recently cited South Dakota as the state with the lowest percentage of adults who eat vegetables. High school students in the state also report very low fruit and vegetable intake.

The overall goals of the project were to understand the barriers to increased fruit and vegetable consumption in South Dakota and better educate consumers about the health benefits of eating fruits and vegetables, especially locally grown produce.

The project supported a quantitative and qualitative approach to gathering additional data about the barriers to increased fruit and vegetable intake and how we can better motivate South Dakotans to purchase and consume more produce.

A consumer opinion poll was conducted to assist in the identification of specific resistance points among South Dakotans and be a springboard for the development of strategies to improve the consumption of fruits and vegetables in our state.

### **Project Approach**

#### **Activity: Conduct telephone survey to identify barriers and other factors involved in purchasing fruit and vegetables.**

A statewide consumer poll was developed to allow for cross reference of the attitudes, habits, and patterns with regard to fruit and vegetable consumption in South Dakota.

Hot Pink, Inc. assisted with the consumer poll. The survey included only those families who have at least one child or grandchild under the age of 18 living in the home. The objective was to concentrate the focus on those caregivers raising the newest generations of South Dakotans who also have the ability to make the most significant impact on overall healthy eating habits. The person in the home mainly responsible for buying food and preparing meals was interviewed. 80% of those respondents were women.

The survey was conducted in two parts. 400 interviews were completed in mid-December 2011 with a follow-up interview of 53 additional households with incomes under \$25,000 per year being conducted the end of January 2012.

### **Goals and Outcomes Achieved**

<b>Goal</b>	<b>Measurable Outcome</b>	<b>Actual Results</b>
Increase to 26% fruit intake & increase vegetable intake to 21%	26% fruit intake 21% vegetable intake	N/A
Increase awareness & provide education on health benefits of F & V	26,400 hits	27,878 unique visitors to Healtysd.gov in 2011
Conduct telephone survey to gather information	384 (number based on statistical accuracy with margin of error +/- 5%)	453 interviews were completed.

The Behavioral Risk Factor Surveillance System (BRFSS) is collected by the Center for Disease Control (CDC). BRFSS fruit and vegetable questions are only asked on odd years in South Dakota). Because of changes that have been made in how the BRFSS data is calculated, the 2011 data is not comparable to the previous years. In other words data from prior to 2011 is not directly comparable to 2011 and thereafter. BRFSS 2011 data will be used as the baseline for tracking forward.

### **Beneficiaries**

A representative number of South Dakotans who participated in the telephone surveys were initially affected. This group was asked specific questions focused on fruit and vegetables including those that are South Dakota grown. By interviewing the survey participants, we are promoting awareness on the topic of fruit and vegetables and what consumers should be consuming on a daily basis. Although we do not know if participants increased their consumption by doing the survey, we do feel it likely increased their awareness and knowledge of the importance of eating more. Both the survey and focus groups served as an avenue to collect data about access and availability of locally grown produce. As a result of the formative assessment, we have a better understanding of the barriers and attitudes in purchasing and consuming fruit and vegetables. Identification of these barriers has been helpful as we plan strategies and implement activities focused on education and motivating South Dakotans to consume more fruit and vegetables, especially locally grown.

Other stakeholders benefit by being more informed about South Dakotans behavior, consumption and purchasing habits. The information gleaned from the surveys will assist stakeholders with development of programming and messages to motivate consumers to buy locally and consume more produce. We have shared the results of the surveys with the fruit and vegetable stakeholders group and have presented the findings at various partner meetings and/or conferences such as the Coordinated School Health network meeting, Healthy South Dakota stakeholders meeting and the SD Local Foods Conference. We have also shared the information internally with other state government agencies who are interested in this topic. The surveys are available on the HealthySD.gov website under the Health Professionals tab. We shared the information with the Coordinated School Health program at their quarterly network meeting that includes schools (i.e. educators), and youth organizations advocating for improved health and well-being.

### **Lessons Learned**

Although we are not meeting our goals for consumption rates in South Dakota, we feel there were positive impacts that occurred from the implementation of this project.

For the first time in several years a fruit and vegetable partners group convened to discuss fruit and vegetable consumption. Partners consisted of public health, university, public school and other nutrition-related advocates from throughout the state. During the group's second meeting in July 2012, strategies and activities were outlined and prioritized with partners signing on to objectives they would be leading or assisting with throughout the coming year. With multiple partners working to promote fruit and vegetables and thus bring more awareness to the topic, we are moving in the right direction.

Furthermore, through the public opinion poll along with the food systems review specifically looking at fruits and vegetables in South Dakota; we now have a better understanding of consumer behaviors and in turn are able to implement interventions engaging various partners to help us reverse the trend of low consumption rates. We will also influence South Dakotans decisions to buy locally and support our farmers/producers in our state and thus provide economic growth and increase revenues in our state.

### **Additional Information**

The information is being used in planning strategies focused on increasing fruit and vegetables. Harvest of the Month (HOM) was chosen as one intervention to address through a vetting process by the Fruit and Vegetable Stakeholder group consisting of public health, university, public school and other nutrition-related advocates from throughout the state.

HOM was developed through a partnership between the SDDOH, the South Dakota Discovery Center and the Pierre School District. SD HOM developed a curriculum of fruit and vegetable introduction for school-age children, modeled after a successful California HOM program. HOM was piloted in the Pierre School District in the 2010-2011 school year. Given the success and positive feedback from the pilot project, the SDDOH's Fruit and Vegetable Stakeholder group supported the SDDOH's statewide HOM trainings for school, day care and after-school program instructors. The intervention is going to be evaluated in 2013. Survey analysis will include: description of who is using HOM materials, what settings they are used in, the age ranges reached, as well as any increase in fruit and vegetable consumption attributed to use of the HOM materials. A particular analysis of the rural settings in which the HOM materials are used will be conducted using the participant zip code information.

## **Project 9**

**Title** Movable High Tunnels: Outreach & Research to Increase Yield, Quality and Market Penetration

### **Final Report**

#### **Project Summary**

A two day movable high tunnel construction workshop was held November 6 and 7, 2012 at the cooperator's farm in Mission Hill, SD. The workshop included hands on step by step construction demonstration from start to finish. Also included were presentations on how to choose and build high tunnels for both fixed and movable structures, seasonal crop selection and nutrient and water management in a high tunnel. A high tunnel production workshop was also held on February 26, 2013 in Brookings, SD. Topics in this workshop included a discussion on how to select the right high tunnel for your situation, soil and nutrient management in a high tunnel, insect pest and disease management and marketing options for high tunnel growers. Over 40 persons attended one or both of the workshops. The attendees were either producers or potential producers. Feedback from participants was highly positive.

Workshop participants were surveyed after the workshops. Other specialty crop producers were surveyed through an online survey

1. 22 specialty crop producers participated in and online survey and 33 workshop attendees completed surveys after the workshops.

Results:

- a. Acres under horticultural crops: ½ acre: 27.2%; ½-1 acre: 43.6%; 2-5 acres: 20%; 15-20 acres: 3.6%; >20 acres: 5.5%
- b. Crops grown: Vegetables: 92.6%; Berries: 50%; Flowers: 35.2%; Tree fruit: 29.6%, Other (herbs, bedding plants): 14.8%
- c. Production method: Certified organic: 3.6%; Conventional : 25.6%; Natural: 61.8%; Sustainable (IPM): 16.4%; Other (transitioning to organic): 5.5%
- d. Currently growing in high tunnel?: No: 58.2%, fixed high tunnel: 38.2%, Movable high tunnel: 1.8%
- e. Those who would consider a high tunnel in the next 3 years(20 answered) : Movable high tunnel : 50%; Fixed high tunnel: 50%
- f. Has growing in high tunnels increased production season (22 answered): 72.7% yes (by 4-8 weeks); 18.2% (too early to tell); 9% no

- g. Has growing in high tunnels increased profits (21 answered): 66.7% yes; 19.0% (too early to tell); 14.3% no
  - h. Where produce is marketed (22 answered): Farmers' markets: 72.7%; Roadside/Farm stand: 45.5%; CSA: 22.7%; Pick your own (PYO): 4.5%; Schools/Colleges: 18.2%; Restaurants: 27.3%; Grocery stores: 45.5%, Nursing homes/Hospitals: 4.5%; Other: 27.3%
2. Workshop attendees:
- 5 attendees indicated that they utilize the information learned at the workshops to select suitable high tunnel for their circumstances and to prepare the site for the high tunnel
  - 3 attendees indicated that they will contact NRCS to inquire about the high tunnel cost share program.
  - 7 attendees indicated that they will utilize the soil and nutrient management and pest and disease management information learned at the workshops in their high tunnels

### **Project Approach**

This project was barely started. Very little work was done. The intended accomplishments were not met.

### **Beneficiaries**

With the project only getting started and then changes being made, the intended beneficiaries did not get what they would have out of the project.

### **Lessons Learned**

A new PI was found for this project. The new PI changed the scope of the project at the university research farm. A change of scope amendment was done and a new project was done with the remaining funds.

### **Funding Expended**

\$3,130 of \$10,709 expended.

## **Project 10**

**Title** – Buy Fresh Buy Local South Dakota

**Contact Person** – Pat Garrity | 605-660-1034 | garrity@iw.net

### **Final Report (Previously Submitted)**

#### **Project Summary**

The overall purpose of this project was to increase the awareness and consumption of local foods in South Dakota by promoting specialty crops at farmers market events and increasing specialty crop growers' marketing skills. In the next ten years, South Dakota should be able to reach 10% of the total consumer fruit and vegetable purchases.

#### **Project Approach**

Buy Fresh Buy Local SD (BFBLSD) public promotion campaign is effectively providing information to a large audience (421 listserv names) with email communication for activities, conferences and seminars. The website for BFBLSD [www.bfbfsd.org](http://www.bfbfsd.org) provides current information for seminars, events and activities regarding specialty crops. The Buy Fresh Buy Local SD membership roster increased twenty (20) members, from fifty-four (54) to seventy-four

(74), a 37% increase over last year. The BFBLSD organization is growing and becoming more active throughout South Dakota.

The partnership with SD Value-Added Agriculture Development Center (VAADC), South Dakota State University (SDSU), Resource Conservation & Development (RC&D) and many communities has provided the ability to promote local specialty crops throughout South Dakota. Seven community fact finding meetings with VAADC allowed BFBLSD to evaluate the current activity in a community, determine future activity plans and begin implementation of action plans for each community. These plans range from community garden development to producer cooperatives. BFBLSD is at the table for community task force development and very active in discussion / decision / implementation.

Buy Fresh Buy Local SD participated in five (5) conferences with attention on local specialty crops in South Dakota. The conferences involved producers throughout the South Dakota and provided economic impact studies, social /community impact research, business planning, grower training, and institutional food purchasing requirements / expectations and producer skills / training. Attendance at all the listed conferences was 248 attendees from across South Dakota. BFBLSD was able to present the economical, social and sustainable factors of local specialty products in the South Dakota marketplace.

Buy Fresh Buy Local SD visited nine (9) Farmers Markets throughout the state. Many of the markets are BFBLSD members (20) and participated in requests for organizational direction and continued promotion materials. Technical assistance for market setup, market hours, market rules, community culture / involvement, vendor practices, Good Agriculture Practices (GAP) training / implementation and effective sales practices. The markets are gaining popularity, establishing in smaller rural areas and providing dependable supply for the customer thus greater financial returns for the producers.

Buy Fresh Buy Local SD partnership with Dakota Rural Action to assist in the SD Local Foods Guide provides an excellent publication with statewide coverage of all local specialty crop producers.

Sixty-two percent of funding for this project comes from the Specialty Crop Block Grant while 80% of total growers involved in this project are specialty crop producers. We used matching funds for the remaining 38% of the project, offsetting the project costs of non-specialty producers.

### Goals and Outcomes Achieved

Goal	Measurable Outcome	Actual Result
Increase membership in BFBLSD	70	74
Increase publications mentioning BFBLSD program	20	20
Increase the number of groups who learn about local foods	30	19 meetings with 248 attendees

Follow-up interviews with the participating farmers' markets (Wagner, White River, Rapid City, Sioux Falls, Brookings, Vermillion, Aberdeen, Pierre, Montrose and Huron) have provided evidence of increasing sales. Each market has increased consumers per market from 10% to 35% due to increased market site awareness, better product availability and increasing healthy,

local food awareness. One specific example shows a farmers market in Wagner increased their sales by 45% from 2012 to 2013.

We worked with 4 new farmers markets providing technical assistance. Assistance was provided in the areas of market branding, promotion, advertising and attracting customers to the market.

### **Beneficiaries**

A total of 140 specialty crop growers and producers have benefited from this project. These producers are from throughout South Dakota with focus on highly rural areas. These areas are experiencing extreme food desert conditions, lack of skill-set training, lack of marketing efforts and major distribution issues. This project has reached many areas of South Dakota that were never involved in the specialty crops until our outreach efforts began to draw attention to the benefits of specialty crops production. Many associations have begun to be involved in the South Dakota farmers' market, specialty crop development. Examples are community development associations, Native American groups, South Dakota Specialty Producers Association and South Dakota State University.

The main beneficiary is the specialty crop producer. All efforts are to increase consumption of local foods throughout South Dakota. Each market needs dependable supply, reasonable profit, constant quality and good promotion.

Buy Fresh Buy Local will continue to partner with organizations to promote local specialty crops in South Dakota. The economic impact continues to be dramatic and South Dakotans are becoming aware of the social and health benefits of increasing awareness and consumption of local specialty crops. Our promotion materials are increasing brand recognition and give greater confidence to consumers to increase specialty crop purchases. The education drive to create producer cooperation is increasing Farmers Markets in rural areas throughout South Dakota. The efforts to develop producers cooperatives is providing a foundation to aggregate, process and deliver specialty crops into the institutional markets throughout the state.

### **Lessons Learned**

Partnerships are key to success in local food systems. We have worked with many partners throughout the state to make an impact. Effective and consistent promotion are also key to getting a message across and to get consumers to stop at farmers markets and buy locally grown specialty crops.

Taking the next step to develop producer cooperatives has met its challenges in finding the right type of organization, the right players and the right physical location.

### **Additional Information**

The future plans for Buy Fresh Buy Local SD are continued efforts to increase consumer awareness of local specialty crops, development of community efforts to provide economical outlets for specialty crops and organize producers to create cooperatives to market specialty crops in institution sales. The current estimated local specialty crop consumption is around 3% and BFBLSD sets a goal of 10% in the next seven years.

## **Project 11**

**Title** – Developing a New Market for South Dakota Hops

**Contact Person** – Dan Durben | 605-642-6505 | dan.durben@bhsu.edu

### **Final Report (Previously Submitted)**

#### **Project Summary**

Hops have the potential to be developed as a safe, environmentally benign, natural products “green” anti-fungal treatment for the large and growing U.S. and worldwide aquaculture industry. Preliminary controlled lab studies have shown that hop-based treatments are active against *Saprolegnia*, the primary fungal infection problem on fish eggs in hatcheries to increase the quantity of fish available for human consumption.

This project set out to determine the best hop varieties and the optimum hop treatment regimens to control the initiation of fungal growth on fish eggs. Local South Dakota grown hops were harvested and categorized based on their alpha- and beta-acid concentrations, as determined by UV spectroscopy. Different hop treatment regimens, using a range of hop varieties, were tested in egg rearing trays in a production hatchery setting to determine the optimum amount of hop exposure that will prevent fungal infections on fish eggs while also not impacting egg mortality. The goal of the research was to determine the most effective hop varieties and recommend those varieties for planting by local hop growers to develop as anti-fungal agents. The results were expected to open a large new market for hops and South Dakota hop growers.

Unfortunately, this project was terminated before all of the work and all of the measurable outcomes could be achieved.

#### **Project Approach**

The hops dosing trials were completed by Black Hills State University in conjunction with South Dakota Game, Fish and Parks. The hops were grown by John Dixson and Steve Polley, were tested for alpha and beta acids at BHSU and then students prepared the hops for the dosing trials.

Goal 1: Met benchmark of 100% of crop harvested (an increase from the 20% harvest before the grant).

Goal 2: Determine alpha and beta acid contents. Met benchmark of 100% of crop. Reported results to the grower for use in marketing crops to brewers.

Goal 3: Determine minimum dosage of different hop varieties to control fungus. We determined that high alpha- and beta-acid hop varieties could control *Saprolegnia* in Petri dishes at concentrations as low as 10 ppm of hop extract (hops were soaked in water and solutions made from the extract. Whole hop cones were effective at controlling *Saprolegnia* in production egg trays at normal water flow rates, with high alpha- and beta-acid varieties requiring as few as 10 hop cones applied fresh every three days.

Goal 4: Determine dosage of hops that was safe for eggs. We did have mortality issues with all hop trials. This may not have been due to the hops, but there may have been an issue with the experimental rearing vessels. This part of the study will be continued (on other funding) when new surplus eggs arrive and will be done in the production rearing trays.

Goal 5: Determine best hop varieties for antifungal applications. It appears that high alpha- and beta-acid varieties have the best antifungal behavior, but safe dosages still need to be determined before giving recommendations to growers.

So far we have narrowed down the treatment regimen to control Saprolegnia.

This project was solely focused on developing a new market for hops that would also be appropriate for low quality hops not suitable for other uses (such as brewing).

### **Goals and Outcomes Achieved**

Unfortunately, this project was terminated before all of the work and all of the measurable outcomes could be achieved. However, some of the measurable outcomes were fully achieved or partially achieved. Locally harvested hops were used in this project and the alpha and beta acid concentrations were determined for each variety of hops used in the testing. The testing also determined that high alpha- and beta-acid varieties were effective at controlling fungus growth on fish eggs.

The PI did experience mortality issues with the fish eggs so a specific dosage of hop varieties safe for salmonid eggs was not determined.

At least 2 hop growers were informed of a new high-value market for their product.

### **Beneficiaries**

Researchers learned some valuable information about treating fish eggs for fungus with hops. Two hops growers in South Dakota also received some preliminary information about which hops varieties seem to be best suited for anti-fungal treatments on salmonid eggs.

### **Lessons Learned**

Unfortunately, this project was terminated before all of the work and all of the measurable outcomes could be achieved. SDDA has learned that it is beneficial to have not only a main contact for the project but it would also be helpful to have an alternate contact listed for all projects.

## **Project 12**

**Title** – Providing Locally Grown Produce to School Nutrition Programs

**Contact Person** – Rena Hebda | 605-665-2806 | hebdaproduce@msn.com

### **Final Report (Previously Submitted)**

#### **Project Summary**

In August of 2010 and again in February 2011 there were meetings held that brought local producers and school food service directors together. Through this discussion and others across the state there has been much interest voiced by schools to purchase fresh local produce and producers to sell to these institutions. As a result of these contacts Hebda Family Produce was able to provide apples to two school districts in October 2010. Following the February 2011 meeting Hebda Family Produce spoke with these two school food service directors and two additional school food service directors about how we as producers could help

facilitate increasing the amount of local produce they purchased. These four directors identified several problem areas.

This project focused on opening doors to fresh fruits and vegetables grown in South Dakota to be served in school lunch programs across the state and sought to overcome the problem areas identified by the food service directors.

### **Project Approach**

Hebda Family Produce was the host site for the Oct. 2011 District School Food Services meeting which brought in 50 lunch room workers from South Eastern South Dakota. These individuals were taken on a farm tour, a program was done by Rena Hebda on local foods in the school and a sampling of fresh produce was done. Two schools picked up produce that very night to take back to their facilities. From this encounter, Hebda Family Produce was asked to be the host site for the 2012 School Foods and Nutrition Services on farm tour. In June of 2012 – 100 participants (most school food service managers) in the South Dakota Nutrition Services Summer Program came to tour the farm and discuss product packaging and handling. Food safety, packaging and availability of local foods in the schools was also discussed.

When hosting two meetings, we had opportunities to poll the school food service directors about what types of fresh fruits and vegetables they utilize each month. The schools identified what they use during those meetings. We have also had one-on-one conversations with school food service directors and have also pulled out this information from those conversations.

The project director has coordinated with Happy Hydros, another specialty crop producer to provide fresh fruits and vegetables to schools. The project director emails the other producer at the end of the week to see what they have available. The two producers then coordinate delivery of the products over the weekend when their paths cross and refrigerate product until it is delivered early in the week.

A weekly “What’s available” e-mail is sent out to participating schools early in the week identifying the local produce available for purchase; the grower; packaging; cost and delivery. Schools then place their order via e-mail. This method/tool for purchasing local produce has worked very well so far.

The project coordinator then delivers the produce purchased by the participating to schools.

School food service directors have identified customary packaging for the items they want to purchase. In the Spring of 2012, Hebda Family Produce had asparagus available for purchase. One of the school districts requested that the asparagus be cut in 4 inch lengths where the customary packaging for that farm is in 6-8 in lengths. Hebda Family Produce custom packaged the asparagus to fit the school’s specifications for them. Hebda Family Produce is also looking at how they package apples. They are looking into whether pre-packaged apples slices is something they can consider.

The PI worked with the Food Service Director at Yankton Public School to develop a working tool schools could use when working with local producers to secure product for their school lunch programs – see Additional Information.

Hebda Family Produce did one educational program with students when the fresh asparagus was available. Starting in the Fall of 2012, the educational programs have been shifted to the farm. Kids come to the farm in the fall, with the focus being on grades Pre-K – 2<sup>nd</sup> grade. The

program has an educational piece on fruits and vegetables – where does it come from, how does it grow? They point out vegetables growing outside and those inside the store. The children also participate in an apple taste testing.

We also did a presentation in Nov. 2011 at the South Dakota Local Foods Conference in which 20 producers attended the presentation. Distance & date of the 2012 SDFNS state convention prevented participation. We did host School Food Service Workers at our farm and were an onsite local foods destination for the students in the Food Service Certification Course. In the Spring of 2012 we were program presenters for the Beginning Farmers Program on the topic of Local Foods and providing produce to local schools. There were 15 beginning farmers in attendance.

In the first year of the project, Hebda Family Produce has provided fresh fruits and vegetables to 5 school districts and over 6,000 students in the state of South Dakota from Oct. 2011 thru Sept. 2012.

In Year 1, two specialty crop producers provided the following fresh produce to our school in South Dakota – Potatoes, Apples, Lettuce, Spinach, Tomatoes, Radishes, Cucumbers, Asparagus, Snow Peas, Cherry Tomatoes.

In Year 2, three specialty crop producers has provided fresh fruits and vegetable to 9 school districts and over 8,000 student in the state of South Dakota from Oct. 2012 thru Sept. 2013.

Hebda Family Produce along with Happy Hydros and Jensen Produce, two other specialty crop producers in South Dakota has provided the following fresh produce to our schools in South Dakota – Asparagus, Spinach, Lettuce, Slicing and Cherry Tomatoes, Radishes, Squash, Onions, Peppers, Watermelon, Cucumbers, Snow peas, Apples.

The specialty crop producers involved in this project used coordinated drop/pick up spots to facilitate the exchange of produce between producers that could then be delivered to the schools. Such environments included farmers markets that produce could be picked up on Sat. stored in a cooler and delivered to schools on Monday. Also exchange of produce occurred when farmers were delivering product to retail vendors – making use of these coordinated sites reduced the mileage and travel barrier for farmers to get their produce to schools. Central drop points were utilized. Minimum order requirements and scheduling deliveries when other business or deliveries were being done in the area helped to reduce the travel barrier.

Hebda Produce expanded their growing season by putting up a High tunnel and successfully grew spinach during the winter months. Fresh spinach was available to the schools in the months of February and March. Hebda Produce also provided educational opportunities to over 800 school children from 30 different schools that toured their farm in the fall of 2012. The children learned about where their food is grown and how it gets from the farm to their home or school. The children sampled a variety of fresh produce.

### Goals and Outcomes Achieved

Goal	Target	Actual Results
Begin a pilot program to increase the amount of produce utilized by school food and nutrition	6 sales the first year and 10 sales year number 2	Year 1 – 10 sales to 5 different schools Year 2 – 16 sales to 9 different schools

programs		
Help schools identify what local fruits and vegetables are available for purchasing	Schools will identify & purchase 4-6 fruits or vegetable products that they obtained locally per year	9 schools have purchased 13 different fruits or vegetables
Make local produce accessible to schools during the "off season"	Each school purchases at least one "out of season" fruit or vegetable product	Year 1 – Asparagus was custom cut and packaged to schools Year 2 – Spinach was available in Feb and March

### **Beneficiaries**

Hebda Family Produce did one educational program with students when the fresh asparagus was available. Starting in the Fall of 2012, the educational programs have been shifted to the farm. Kids come to the farm in the fall, with the focus being on grades Pre-K – 2<sup>nd</sup> grade. The program has an educational piece on fruits and vegetables – where does it come from, how does it grow? They point out vegetables growing outside and those inside the store. The children also participate in an apple taste testing.

In the first year of the project, three specialty crop producers provided fresh fruits and vegetables to 5 school districts and over 6,000 students in the state of South Dakota from Oct. 2011 thru Sept. 2012.

In Year 2, three specialty crop producers provided fresh fruits and vegetable to 9 school districts and over 8,000 student in the state of South Dakota from Oct. 2012 thru Sept. 2013.

Students in the backpack program also received apples on a regular basis in the Fall of 2012. This program provides at-risk children with nutritious, easy-to-prepare foods during weekends and holidays when school is not in session.

Because of the SCBGP funding for this project, we were able to iron out many of the issues that farmers and schools face for providing produce for the school nutrition program. There are many specialty crop producers in South Dakota that are interested in selling produce to schools and they can take the lessons learned from this project and make their own sales.

### **Lessons Learned**

Challenges:

- 1) Weather continues to be an unpredictable factor – positively it was a mild winter and good for spinach production in the high tunnel – a new seasonal market for this product to the school. The apple crop for the fall of 2013 was tremendous. The cooler spring did slow the sales to the schools in the months of April and May.
- 2) Schools have commodities or commodity dollars that they must expend thus reducing the funds available to purchase produce from local growers.
- 3) Logistics made it difficult with being able to provide produce to schools West of the Missouri River.

Successes:

- 1) Hosting the participants from the South Dakota Nutrition Services Summer Program and the District School Food Services Directors the first year of our grant had a positive factor in awareness of local foods, identification of where they could obtain local produce

and the food service directors taking the initiative to contact us for product or willing to purchase fresh fruits and vegetables when we contacted them.

- 2) Blanched frozen asparagus has been packaged and made available for schools in the off season.
- 3) Grower and school participation increased in year two of our grant.

### **Additional Information**

Sample of the Local Foods Procurement Tool

## Local Foods Procurement Tool

Vendor Contact Information:

Name:

Address:

Phone:

E-mail:

Current Insurance and Certifications:

Growing Practices:

Product Available	Dates Available	Packaging	Cost	Quantity Available
EX: Apples	September thru December	80 count box	\$36.00	Limited quantity of Liberty apples.  Large quantity of 120 count empire apples
		100 count box	\$36.00	
		120 count box	\$36.00	

Method of delivery:

Payment Procedure:

## **Project 13**

**Title** – South Dakota Wine Pavilion

**Contact Person** – Alison Kiesz | 605-626-3272 | Alison.kiesz@state.sd.us

### **Final Report (Previously Submitted)**

#### **Project Summary**

Wine production has actually increased from no commercial production only 15 years ago to an estimated 98,000 gallons in 2012. The value-added and experience based marketing components of wine is the engine that drives additional specialty crop production including grapes, berries, apples, pears, etc. Without the wine promotion and education, the specialty crop industry will be destined to suffer much slower growth that will plateau when the nearby markets are saturated.

The promotional elements of the project are targeted to the consumer, providing a one-of-a-kind opportunity to sample wines from nearly every winery from across the state. Many of the customers are not aware of the quality and diversity of wines produced and may not even know that we have a fledgling wine industry. The second target of these efforts is the specialty producers. Participating wineries are there to show off the final product, talk to specialty producers, and network with resource personnel.

#### **Project Approach**

The South Dakota Department of Agriculture along with the South Dakota wine industry hosted the SD Wine Pavilion at the 2012 SD State Fair. This was the sixth year we have held a wine pavilion at the State Fair. It has been very successful based on the number of people attending the wine pavilion and tasting South Dakota wines. Anecdotally we have also heard good comments from the participants, who ask us to bring the pavilion back to the fair every year. We also have many repeat customers. The South Dakota Winegrowers Association has also stated that this is the most successful event they participate in.

SDDA hired a contractor to plan the wine pavilion, including contacting wineries, hiring staff, promoting the event, etc.

The wine pavilion took place during the South Dakota State Fair on August 30 – September 3, 2012. Eleven South Dakota wineries participated in the five day event, down from thirteen wineries in 2011. One winery was unavailable to attend and one winery had received hail on their grapes and so didn't have the inventory available for the event. The event is set up so that consumers can sample a variety of South Dakota wines. We had 31 varieties of wine available (one of the wineries sent one variety and the remaining wineries sent three varieties each) and had all of them available every day for consumers to sample. We had five regular tasting stations set up – each one featuring a different type of wine (red, sweet red, white and 2 fruit stations). Professional staff describe and sample the wine to consumers.

We also partnered with various commodity organizations to pair the wine with South Dakota food including beef, pork, turkey, cheese and lamb. We made an increased effort to pair wine with South Dakota cheese this year. All food paired with the wine was donated by various commodity groups, organizations and businesses. We had cheese available from each of the state's six cheese manufacturers. We worked with the SD Beef Industry Council, South Dakota Pork Producers Council, Dakota Provisions, Midwest Dairy Association and the South Dakota

Sheepgrowers Association. All food paired with the wine was donated and no Specialty Crop Block Grant funds were used for purchasing food.

Once consumers sample the wine, there is a retail area where they can purchase wines by the glass to enjoy in the wine garden; or they can purchase a bottle of wine to take home with them.

We had over 3,500 people visit the wine pavilion and sample SD wine. We counted people by the number of tasting tickets that were purchased. There were certainly other people who walked through the wine pavilion but did not sample wine. We do not have an accurate way to count those people.

We conducted a guest survey at the wine pavilion. The survey was created by SDDA staff and available to guests who sampled wine at the Wine Pavilion. Guests filled out the survey on their own and placed it in a box at the Wine Pavilion. 132 guests filled out the survey.

South Dakota wineries sold over 72 cases of South Dakota made wine at this event. The wines at the event represented the following specialty crops: grapes, aronia berries, cherries, crab apples, rhubarb, raspberries, apples, black currants, strawberries, cranberries, honey, and peaches.

### Goals and Outcomes Achieved

Goal	Performance Measure	Benchmark	Target	Actual Results
Increase awareness of State Fair attendees of South Dakota wines	Surveys of attendees	0	75% of attendees gain knowledge about SD wines	93% of attendees increased their knowledge of SD wine because of the wine pavilion

61% of people surveyed indicated that it is important to them to have an option to buy wines made in South Dakota. Also, surveys indicated that “South Dakota Produce” is the third most important factor they consider when purchasing a bottle of wine. 132 guests filled out the survey.

### Beneficiaries

Eleven South Dakota wineries, 64 specialty crop producers and 3,500 consumers benefitted from this project. The wineries saw their revenues increase by over \$14,500 from this project. Likewise, these wineries purchased over \$84,000 worth of specialty crops in 2010 to turn into wine. Also at least 3,500 consumers had the opportunity to learn about and sample South Dakota wine. This project has helped the South Dakota wine industry grow by 7% in 2012. South Dakota wines also have a 7.1% of market share of all wine sold in South Dakota in 2012, up slightly over a 7.0% market share in 2011.

### Lessons Learned

This has been a very beneficial project for South Dakota’s wine industry. Some of the lessons we have learned along the way include keeping the activities of the wine pavilion simple and focused. There are many activities and other opportunities that can be added along and for each of them, we have asked the question, “Will this help enhance South Dakota’s specialty

crop and wine industries?" If the answer is no or if that activity will take the focus off of the wine industry, then we don't add those additional activities or opportunities.

We have also learned that having the right partnerships greatly enhances this event. State Fair staff have been fantastic to work with; the wineries have been great to work with and accommodating of changes we have made. Other industry groups have also helped us increase the value of the wine pavilion to our guests.

**Additional Information**

Copy of guest survey:

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## South Dakota Wine Pavilion Guest Survey

Gender: \_\_\_\_\_ City: \_\_\_\_\_ Age: \_\_\_\_\_

1. Has the Wine Pavilion increased your knowledge of South Dakota wines?

YES NO



2. How much wine do you consume in a month?

0-1 bottles      2-4 bottles  
5-7 bottles      8+ bottles

3. What best describes the kind of wine you buy to drink in your home?

I mostly buy wine made in South Dakota.  
I mostly buy imported wine (i.e. Europe, Australia, etc.)  
I mostly buy wine from other states (i.e. California)  
I buy wine made wherever  
I don't know where the wine I buy is made.

4. What is the average price/bottle of wine you purchase to drink in your home?

Under \$9      \$9 to \$15  
\$15 to \$22      \$22+

5. How would describe your favorite type of wines?

White      Red      Rose      Fruit      Sparkling

6. What factors do you consider most when purchasing a bottle of wine? Rank the top three. 1 = most important factor. 2 = next most important factor

Price	1	2	3
Taste	1	2	3
Brand	1	2	3
Food Pairing	1	2	3
Made from SD Produce	1	2	3

7. How important is it to you to have an option to buy wines made in South Dakota?

1      2      3      4      5  
(Not Important)      (Very important)

Sign up to receive news from South Dakota's wineries.

Name \_\_\_\_\_

Email \_\_\_\_\_

## Project 14

**Title** – 2013 Farmers Market Grower Grants

**Contact Person** – Chase McGrath, SDDA | 605.773.3649 | [chase.mcgrath@state.sd.us](mailto:chase.mcgrath@state.sd.us)

### Final Report

#### **Project Summary**

Farmer's Markets are an important outlet for specialty crop producers to market their products. They also foster interaction between producers and consumers. There are many new specialty crop producers selling their products at farmers markets. Many of them have questions on pricing their fruits and vegetables. Right now, the information collected from this project is the only information available from a cross section of farmers markets across the state.

In 2012, we collected baseline data about the price vendors were charging for specialty crops, and the amount of sales vendors were making at the farmers market. The 2012 data now serves as the baseline data for all future collections moving forward. The data collected in 2013 has been compared to the 2012 data. This information is helpful for potential specialty crop producers or beginning producers as they start pricing their product for sale.

#### Project Approach

SDDA used our network of farmers markets and provided information to all of them about this program in February 2013. We used direct email contact as well as utilizing a South Dakota Farmers Market Listserve to inform potential applicants about the program. Information and the application were also available on our website. Applications were due March 29.

We originally approved 13 applications and then throughout the course of the growing season, 1 market was unable to open. All successful farmers markets were notified of funding in late April and individual calls were held with all farmers markets to review the program requirements. In addition, reminder emails were made to the farmers market managers about a week prior to the information collection dates.

Qualifying farmers markets will be eligible for \$1,000 grant. Fifty percent of the funds were made available upon signing a grant agreement and fifty percent of funds were made available when all information was successfully submitted.

Farmers market managers submitted three pieces of information to SDDA over the course of the growing season.

1. Markets were required to record and submit lists of specialty crop products sold and their respective sale prices at three different times throughout the season (early, mid and late season) to SDDA. SDDA provided a template for farmers markets' use. Pricing information was collected by all markets:
  - The last market in June
  - The first market in August
  - The third market in September
2. Farmers markets also submitted gross sales data from their vendors at three different times throughout the season (early, mid and late season) to SDDA. Vendors submitted the data anonymously by writing their gross sales figures on a slip of paper and putting it in a sealed envelope given to the farmers market manager.

3. Farmers markets collected customer information through a dot survey once during the market season. Information collected included the following information: miles traveled to market, customer age and gender, and customer dollars spent at the market.

SDDA worked closely with the farmers markets during the growing season. We sent them a template for reporting pricing and gross sales. We also provided a brief overview on how to use the dot surveys. We sent them email reminders and/or follow up phone calls to remind them to collect this information and submit it to SDDA.

SDDA presented the results of this information at the 2013 South Dakota Local Foods Conference to approximately 40 attendees. 80% of them indicated this information was useful to them. We also presented this information to 23 attendees at a Farmers Market Workshop in February 2014 and to 31 attendees at a regional economic development meeting in March 2013. We've had several requests for more specific pricing information from specialty crop growers after these meetings.

**Goals and Outcomes Achieved**

Goal	Target	Actual Results
Increase information available about pricing for fruits and vegetables	90% of people who receive the information will find it useful	85% of people at the 2013 SD Local Foods Conference indicated this information was useful to them

While we fell just short of our target goal of 90% of people finding the information useful, we are pleased to know that 85% of the people who received the information found it useful. We've also had several requests for more specific information than what we are able to provide during a short presentation.

**Beneficiaries**

Specialty crop producers will benefit from this project by being able to identify a pricing scheme for their product based on their geographic location in South Dakota. We have also identified that late in the farmers market season, customers attendance dwindles. This gives the farmers markets an opportunity to continue to promote the market to customers and remind them that locally grown fruits and vegetables can still be purchased in September and October. This information can also be useful to specialty crop producers because it helps them identify additional marketing periods for their products or identify additional crops that they can add to their farm to increase their growing season and their sales opportunities.

The information obtained from this project will be used as a baseline going forward so we can start to look for trends in the information collected. It also helps make the case of how specialty crop production is becoming more and more important to our state's economy. Even though it is dwarfed by traditional crop production, it is starting to make an impact on our economy and to our specialty crop producers.

12 farmers markets have benefited from the Farmers Market Growers grant this year. Within those farmers markets, there was approximately 86 vendors. Not all vendors participated in the farmers market every week. It is hard to get an exact count on customers when the project is performed over a summer long selling season. Many people come week after week. With the estimates from the markets, it is estimated that there was approximately 1257 customers that benefitted from the Farmers Market Grower Grant.

## Lessons Learned

Going forward, we have learned some lessons and will be conducting the application process a bit different in coming years. In 2012, we approved applications on a first come-first served basis, but this may not be the best choice. Because of the selection process, we lacked diversity in the size of the markets. In 2013, we included a wider array of market sizes in the selection process. We also want to continue to make sure that we have geographic variety in the markets – that the markets involved in this program are spread out across the state and aren't all concentrated in one area of the state.

It has, at time, been a challenging project. Because almost all of the farmers market managers are volunteers and many of them are also vendors at the farmers market, information isn't always collected exactly as we'd requested. There have also been times, when a certain piece of information wasn't able to be collected because the farmers market manager was ill or out of town and other volunteers weren't able to collect the information (despite the manager asking them to).

When we presented at the farmers market conference, we also received some valuable feedback from growers about how to collect the information (such as cost per pound or cost per each item).

## Additional Information

### Procedures for Conducting Dot Surveys

1. Read the 'Tools for Rapid Market Assessment' from Oregon State University Extension Service (<http://extension.oregonstate.edu/catalog/pdf/sr/sr1088-e.pdf>)
2. Choose a market day in mid-season to conduct the survey
3. Purchase supplies
4. Write the questions and answers (provided below) on 4 separate easels or posters
5. Have a volunteer(s) direct customers towards the survey at the market
6. Tally up the answers and mail or email your raw data to SDDA. You do not need to make charts or graphs. Send us only the number of dots on each answer to each question.

### Questions to ask on your dot survey

1. How many miles did you travel to attend the market today?
  - a. Less than 1 mile
  - b. 1 – 5 miles
  - c. 5 – 10 miles
  - d. More than 10 miles
2. How often do you shop at the farmers market
  - a. Every week
  - b. 2-3 times/month
  - c. Once a month
  - d. Infrequently
  - e. First Time
3. How much have you (or will you) spend at the market today?
  - a. Less than \$10
  - b. \$10 - \$15

- c. \$16 - \$20
  - d. \$21 - \$25
  - e. More than \$25
4. What did you (or will you) purchase today?
- a. Fresh fruits and vegetables
  - b. Baked goods (breads, cakes, etc.)
  - c. Processed/prepared foods (salsa, jams, pot pies, etc.)
  - d. Other

## **Project 15**

**Project Title:** Incubator Garden and market for refugees to support expanded specialty crop production, consumption and sales.

**Project Coordinator:** South Dakota State University – Chris Zdorovtsov, PI

### **Final Report**

#### **Project Summary**

The Somali Bantu Community Development Councils of South acquired a Refugee Agricultural Partnership Program (RAPP) grant to assist aspiring, limited-resource refugee to develop their skills as gardeners, to encourage healthy diets and to sell their produce in 2013. Their funding helped to establish a community garden, program director and horticultural educator/garden mentor.

SDSU Extension assisted with designing a 6-month, intensive classroom and garden-based training program 'New Roots for New Americans,' where 38 participants (refugees from Asia and Africa) learn about sustainable produce production in South Dakota, food safety, nutritional vegetable preparation, canning, and local food entrepreneurship. The incubator program ran weekly from Jan.-June 2014. During this timeframe a small team of participants also came together to plan a farmers market at the community garden site as an outlet for refugees to start their own business and increase incomes for their family. They opened their produce market on July, 19 2014.

The incubator approach has been essential for this group of stakeholders as language, income levels, transportation, and land access are barriers. As the program progressed block funds were requested to support needs not provided for within the RAPP grant. The block grant funded promotional and marketing materials to increase awareness of the New American Garden Market. It also provided funding for signage, tablecloths, display containers and tents that aided in presenting a professional looking market. It also supported the garden site expansion (12 to 102 raised beds in 2014) by providing funds for increasing water access. This expansion allowed for 26 additional participants in 2014. The grant also provided funds for transportation to a commercial producer operation to gain practical knowledge as part of the training program. Without the additional funding, program participation would have been limited and the farmers market would have appeared unprofessional and unappealing to consumers.

#### **Project Approach**

- Chris Zdorovtsov from SDSU Extension, project leader, provided guidance to the Somali Bantu staff on what types of supplies and promotion should be implemented for the market. She helped them track their grant spending budget. Additionally Zdorovtsov offered bi-weekly planning meeting with the refugee planning team to develop the market and to assisted with constructing market documents (vendor application, sales receipts, rules, etc).

During the New Roots for New Americans program participants reviewed market rules and 27 applied to be vendors.

- As an enhancement to the originally planned New Roots for New Americans program, funds allowed transportation to a commercial produce operation. This allowed participants to visualize commercial field production of produce. Two trips were planned, but only one was funded as the 1<sup>st</sup> field trip occurred before grant funds were released.
- Funding was secured from another source to build and fill an additional 90 raised garden beds at the community garden site. However this expansion did not originally include increased access to water across the site. The Somali Bantu coordinator contracted with a company to install 4 additional water lines and spigots at the garden to improve access for the participants.
- The Somali Bantu coordinator and Zdorovtsov purchased supplies and promotional materials to have a professional looking farmers market. Supplies purchased included butcher block paper (table coverings), containers and bag for packaging and displaying produce, tents, chairs, a hand washing station, S.D. Buy Fresh, Buy Local membership, price signage, market signage, and market promotion and fliers.

### **Goals and Outcomes Achieved**

- The overall goal of this project is to establish a successful marketing outlet for refugees participating in a fruits and vegetable incubator garden program. After months of planning, the New American Garden Market launched on July 19, 2014. It is open two days per week, Saturdays from 10:00am- 3:00pm and Sundays from 11:00am-4:00pm. They are intending to operate until Oct 12.
- Of the 38 New Roots for New American participants, 27 of them completed a vendor application with intention to sell. As of Aug. 16, 18 vendors are actually participating at the market. Two additional participants have indicated they intend to sell before the season is complete. This exceeds the project goal of fifteen growers committing to sell.
- This incubator approach is supporting these new food entrepreneurs. They are learning skills of harvesting and displaying their produce, customer service and completing their sales tax forms.

### **Beneficiaries**

- SDSU Extension supported both socially disadvantaged (refugees) and beginning farmers with this program. The S.D. Specialty Crop Block Grant provided funds needed to move the New Roots for New Americans training program to an entrepreneurial level for the sale of specialty crops, specifically fruits and vegetables. The funds helped by increasing water access, necessary for plant growth, and provided supplies for a professional sales outlet for the participants.
- This program is providing additional income for the 18 vendors. As these producers become more experienced through the incubator program and the market becomes more established there will be a greater economic impact.
- Thirty-eight participants now have access to a large supply of fresh fruits and vegetables that they are taking home and consuming. This has increased their access of healthy produce due to the available supply and low cost.

### **Lessons Learned**

- Limited English speaking skills has been the greatest barrier of this project. Items that were discussed and assumed to be understood would often need to be readdressed. In general this created a situation where project development took much more time than it would with those proficient in English.

- It was determined that even speaking vegetable names and writing receipts in English is difficult for the vendors. To assist with this the Somali Bantu organization is incorporating fruit and vegetable vocabulary into their English-language learning sessions.
- Firm deadlines are necessary when working with this group, as often deadlines are missed. This is again potentially due to again language barriers. Clear and repeated communication is often necessary.

**Contact Person**

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**Additional Information**

- For additional reading about this program see these articles:
  - iGrow article: <http://igrow.org/news/new-roots-for-new-americans-program/>
  - Argus Leader Articles:
    - Sept. 2013: <http://archive.argusleader.com/article/20130904/BJNEWS05/309040009/Hy-Vee-helps-community-garden-grow>
    - Mar. 2014: <http://www.argusleader.com/story/news/business-journal/2014/03/29/community-garden-expands/7047425/>
    - July 2014: <http://www.argusleader.com/story/news/business-journal/2014/07/17/refugees-farmers-market-hyvee/12781323/>