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Final Report  
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Project #1 2014 Restaurant Rewards  
FINAL REPORT

### Project Summary

Restaurants in the program were encouraged to promote the use of Alaska Grown specialty crops through a variety of formats including advertisements, social media and on menus. The Restaurant Rewards logo was provided, along with other promotional materials to help the restaurants promote the Alaska Grown items on their menus. During restaurant audits, the PA reviewed the promotional efforts of the restaurant, and supplied the restaurants with additional promotional supplies as available. The PA shared good examples as seen in previous years or at other restaurants as ways to promote the use of Alaska Grown specialty crops. Receipts documenting the purchase of Alaska Grown specialty crops were maintained and submitted for a percent reimbursement. A change to the program from previous years is that the reimbursement amount was set at 20% for all restaurants to encourage more restaurants to enter the program and encourage steadier entries of reimbursable receipts to the PA from restaurants already in the program.

Restaurant audits were conducted throughout the year to verify that promotion of Alaska Grown specialty crops was taking place by the participating facilities.

### Project Approach

The Division of Agriculture (Division) Project Assistant (PA) conducted outreach about the 2014 Restaurant Rewards program beginning in the second quarter of 2014. Staff gave multiple presentations to growers, restaurant owners, Chamber of Commerce gatherings, etc. 40 restaurants applied for the program. 32 completed the application process and participated in the reimbursements. 1 restaurant was removed from the program for misconduct. All the restaurants in the Anchorage and Fairbanks areas were audited. Due to funding, the restaurants in rural areas of the state were not able to be visited in person by the PA.

Many restaurants were only able to sell Alaska Grown products because they were able to be reimbursed. Others enjoyed the program because it helped them promote the Alaska Grown products they were already using. New farmers joined Alaska Grown and sold to Restaurants who had never considered selling to restaurants in the past. Others had already been selling to restaurants, but joined Alaska Grown in order to help the restaurant get reimbursed through the program.

We were unable to get any of the restaurants to give numbers on how much their purchase of Alaska Grown products increased due to the program. Unfortunately, we were not able to tell by receipts either because we only received the receipts from Alaska Grown purchases. I had nothing to compare them to.

### Goals and Outcomes Achieved

- From talking to foodservices that purchased Alaska Grown before the program, many of them stated that they have increased how much they buy and have expanded to using more than just potatoes and carrots.
- Increase awareness of the Alaska Grown program. This is a two-fold objective with education of the public about local food in foodservices and the local farms it comes from. Since foodservices are now able to use the logo in their establishments to promote the local food they serve, their

customers are seeing it and recognizing the logo and asking what on their plate is local. An unexpected result has been an increase in the number of farms registering in the Alaska Grown program. Farms that had not previously been “found” are getting exposure in the establishments and are being listed in the Alaska Grown Source Book for an even broader marketing coverage for their farm.

- A total of 32 Restaurants Signed up for 2014-2015 program. (15 of which were new recruits)

#### Beneficiaries

- **Between 50-150 Specialty Crop Producers:** More product purchased due to program according to producers. More producers sold to restaurants due to program.
- **70 Restaurants:** More fresh, local specialty crops in their restaurants. They loved the program.
- **Countless Public:** Received local specialty crops in their favorite restaurant dishes. Started asking for Alaska Grown specialty crops in restaurants.

#### Lessons Learned

- Weather impacted growing conditions, which affected what restaurants could purchase from year to year.
- Most restaurants would like a food hub for local food they can go to so that they don't have to manage relationships and delivery schedules with multiple farmers.
- Towards the end, it was difficult to get restaurants to continue filling out the paperwork necessary for the reimbursements. They didn't see the point once the announcement that the program would be ending was made.
- Restaurants were hesitant to share sales information. Restaurant Rewards was unable to quantify exactly how much local specialty crop purchases increased due to the program.

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#### Project #2 Peony Post Harvest Research

#### **FINAL REPORT**

#### **Project Summary**

World cut flower sales are a highly competitive, volatile and multi-billion dollar industry. Sales are subject to fashion whims of consumers as well as industry demands for quality blooms that meet bud size standards and ship well; a product that has the requisite stem length/strength; and one with a long vase life. Since the product is a senescing (dying) stem, the industry has the daunting task of delivering a product whose consumer life is as long and colorful as possible (The reported consumer life for peonies is 7 days [Dole and Wilkin 2005]). Cut flowers must meet rigorous standards or they will be replaced by a myriad of other available specialty cuts from around the world. The Alaska peony industry must meet these standards yet fit with the cultural conditions, climate and distribution system of Alaska. Every

stage of plant production, from cultivation, harvest, post harvest handling, and shipping, impacts product quality.

The peony flower produced in Alaska is large in size. As such, the stem strength of the harvested cut flower can affect the vase life of peony. Research conducted in Chile showed that spraying a calcium (10%) and boron based solution to peony cut flowers prior to harvest can increase stem strength (measured as curvature), stem weight and increase in vase time. In China, spraying 4% calcium on herbaceous peony shows an increase in mechanical strength. This enhanced mechanical stem strength probably is gained through an increase of the fraction of cell wall, endogenous calcium and pectin concentration. To increase Alaska peony competitiveness in the market, it is necessary to know if a calcium based or calcium and boron based spray solution prior to harvest can increase the postharvest quality of the Alaska peony flower.

The University of Alaska Fairbanks (UAF) in cooperation with the Alaska peony growers conducted a series of experiments to establish standards for best quality fresh cut flowers to meet or exceed rigorous international industry requirements .

### Project Approach

In order to establish the minimum time necessary for chilling prior to shipping for maximum consumer vase of fresh cut peonies an experiment (4 replicates, 5 stems per rep) was performed that exposed fresh cut stems of two cultivars, 'Sarah Bernhardt', 'Duchess de Nemours', to a series of cold treatments (24, 48, 72, 96, 120, 144, 168 hrs in 2013 and 0, 48, 96, 144, 192, 240, 288 and 336 hours in 2014) at a target 34 degrees F.

All stems were harvested from the peony fields at the UAF Georgeson Botanical Garden, Fairbanks, Alaska. Cut stems were harvested beginning 1 July in both 2013 and 2014, cut to uniform stem length (24 inches), and wrapped in newspaper. In 2013, bundles were moved immediately after processing to a laboratory cooler. In 2014, the refrigeration unit was changed to a Conex cooler with an air conditioner/CoolBot® refrigeration unit/controller. Both environments were equipped with Hobo® data loggers (Onset Computer Corp.) for hourly records of air temperature and relative humidity. In addition, field air and soil temperature and relative humidity were recorded at the Fairbanks Experiment Farm using the same data loggers with sensors at a 30-inch height for air and 6-inch depth for soil. In 2013, flowers were held in newspaper sleeves, in the dark and un-hydrated for 8 chilling treatments that included a control (no chilling) followed by chilling up to 7 days (24, 48, 72, 96, 120, 144, 168 hours). In 2014, the experiment was extended to 14 days at 2-day intervals (0,48, 96, 144, 192, 240, 288 and 336 hours). Following treatment, the chilled stems were removed from refrigeration and placed in jars of tap water in a laboratory with 24-hr fluorescent lights (25  $\mu\text{M}\cdot\text{m}^2\cdot\text{s}^{-1}$  measured 4 ft beneath the fixtures) supplemented with natural lighting from laboratory windows, and ambient room temperature. Flowers were observed daily, and, stems were gently tapped to release petals if an abscission layer had formed. The date of petal wilt or petal fall on chilled and un-chilled cut stems was recorded. Air temperature and relative humidity were recorded hourly in cold storage and in the laboratory. Data were analyzed using regression analysis for total vase life and hours of chilling during two cutting seasons, 2013 and 2014.

In order to establish that Alaska peonies have a vase life that is equal to or significantly longer than the 7 days reported for peonies in world markets and to determine if there are any differences among cutting

dates. Peonies of two cultivars, 'Sarah Bernhardt' and 'Duchess de Nemours', were harvested on three dates, 1, 10 and 20 July, 2014 (6 stems per cultivar, 3 replicates on each date). Half were placed immediately into jars of tap water and the remainder were refrigerated for 7 days in a Conex/CoolBot® cooler. Handling in the cooler and subsequent vase life studies were the same as Experiment 1. Data were analyzed using analysis of variance for chilled and un-chilled flowers for three harvest dates.

Vase studies were conducted in 2013 and 2014 on 110 peony cultivars growing at UAF Georgeson Botanical Garden. Goal: show variability among cultivars, identify cultivars with the longest vase life, and show vase life differences among peony classes (single, double, Japanese, semi-double, bomb, Intersectional) by determining optimum vase life compared to national average (7 days). Six cut stems of each cultivar were harvested as they reached Stage 3 bud maturity index (Holloway and Pietila 2012). They were chilled for 7 days, then evaluated for vase life as described in Experiment 1. Cultivars were categorized according to flower classification to learn the range, mean and median vase life for each category. Only cultivars harvested both in 2013 and 2014 were subject to analysis of variance (6 stems per replicate, 3 replicates) for differences among cultivars and years.

In order to identify possible variations in product vase life due to diverse growing, handling and shipping conditions of individual growers. Ten growers in Alaska's interior were asked to submit 12 randomly cut stems of 'Sarah Bernhardt' peonies to a local pack house. These pack houses recorded methods of handling (cooler temperatures, relative humidity) for 7 days after which they were transferred to UAF, placed in jars of tap water, and evaluated for vase life.

A laboratory experiment was conducted in the Soils Laboratory of SNRE, UAF. A variety of chemicals were evaluated for their suitability as a spray agent. Two criteria were used for evaluation, 1) the solution should contain an organic compound so that it can have a prolonged resident time on tissue surface, and 2) the pH should not be extreme, either acidic or alkaline. After selecting the appropriate chemical compounds, the final spray solutions contained 5% Ca + 0.5% B + 0.1% K and 10% Ca + 0.5% B + 0.1% K. Both solutions had an approximate pH around pH 6.

A field experiment was conducted by spraying the solutions in the AFES research peony field mixed up in well water and in distilled water, respectively. The spray treatments were: 1) 5% Ca + 0.5% B + 0.1% K in distilled water, 2) 5% Ca + 0.5% B + 0.1% K in well water, 3) 10% Ca + 0.5% B + 0.1% K in well water, 4) 10% Ca + 0.5% B + 0.1% K in distilled water, and 5) no spray (control). Each treatment consisted of 32 plants, with the test cultivar being 'Sarah Bernhardt'. Two sprayings were conducted, one at the two weeks prior to hard bud stage (Stage 2), and the other at the hard bud stage (Plate 1). Six stems were randomly taken for testing at the regular flower cut time. Each test stem was cut right at the first leaf below the flower bud. The stems were measured for their length, diameter, strength, and then dried and ground for laboratory determination of Ca, B and K uptake. This year, peonies in interior Alaska all suffered from significant bud blast. As such, the results may not truly reflect the impact of the treatment due to irregularity of plant growth. The instrument for measuring stem curvature and stem strength was developed with the help from faculties in the College of Engineering and Mines, UAF. The measurement apparatus consisted of a load cell and a Linear Variable Differential Transformation (LVDT) instrument connected to a continuous data logger, battery, and holding clamps for the peony stem (Plates 2, 3, 4). The apparatus was calibrated for different masses of the forces that can cause the curvature and eventual breakage of a peony stem.

## Goals & Outcomes Achieved

The goals of this project were completely achieved. Following is a list of the original project goals and the outcomes achieved.

Goal #1: Cold storage experiments will establish the minimum time necessary for chilling prior to shipping for maximum consumer vase life (estimate from previous research, 14 days) of fresh cut peonies (GOAL) between 12 hours and 1 week (TARGET) over control plants (no cold storage, [BENCHMARK]) in one season.

Preliminary research at UAF found that chilling at 34 degrees F for 1 week, doubled the vase life of peonies, and data from 2013 season corroborates those findings. However, vase life for cut flowers in 2014 decreased significantly and did not improve with chilling. Vase life for 'Sarah Bernhardt' and 'Duchess de Nemours' peonies averaged 6.1 days and 5.9 days, respectively for the entire treatment period and did not differ from the un-chilled control. Because of the unexpected results from 2014, this research did not clearly identify minimum chilling requirements for Alaska peonies. In contrast, cut stems in 2013 showed a linear increase in vase life with chilling, 8.2 to 14.2 days for 'Sarah Bernhardt' and 6.9 to 13 days for 'Duchess de Nemours'.

Goal #2: Market quality experiments will show that Alaska peonies have a vase life following chilling that can be double that of flowers grown in other world locations (GOAL) from 7 days (BENCHMARK) to 14 days (TARGET).

Vase life and bud diameter did not differ among early- mid- and late-season cutting dates for both cultivars. Cut stems from two commercial farms showed the same short vase life, and there was no statistical difference in vase life among farms. These studies do not corroborate the statement that vase life of Alaska peonies is double the national standard. Environmental factors during spring growth or post harvest handling differences play a more significant role in defining vase life than simply hours of chilling (deliverables b,c,e).

Goal #3: Vase life studies of the 110 peony cultivars growing at UAF will show variability among 3 cultivars, identify cultivars with the longest vase life, and show vase life differences among peony classes (single, double, Japanese, semi-double, bomb, Itoh) (GOAL) by determining optimum vase life (5-14 days) (TARGET) compared to national average (7 days [BENCHMARK]).

Vase life for 68 cultivars in 2014 ranged from 4 days to 9 days (mean 6.0 + 1.0 days). In 2013, vase life averaged nearly three days longer, 8.6 + 2.7 days (range 4 - 14 days). Vase life for 2014 was significantly lower for most cultivars than 2013. In 2013, more than 70 percent of the cultivars showed an average vase life of 7 days or more, while in 2014, only 24 percent reached that standard. The four main classifications of peonies grown at the botanical garden (semi-double, Japanese, bomb and full double) had an average vase life ranging from 5 days to 17 days. One classification had a vase life of less than 7 days for both 2013 and 2014, the Intersectional hybrids.

Goal #4: Field trials among commercial Alaska growers will identify possible variations in product vase life (0-14 days) due to diverse growing and shipping conditions (GOAL) by comparing days to full bloom and petal fall and Botrytis susceptibility on 12 randomly selected cut stems from 10 farms as they are delivered to a pack house (PERFORMANCE MEASURES).

The farms did not differ significantly in vase life for the samples submitted. The average vase life for all farms was 4.8 + 1.2 total days. The number of farms completing this project were too small to show

regional differences. Many farms had significant issues with bud blast (attributed to winterkill and Lygus bugs), and could not submit samples.

One interesting note from this study is that the cold storage of these small samples occurred at the pack house cooler, not the University cooler. The poor vase life seems to be region wide, in which case the cause for the overwhelmingly poor vase life in 2014 appears to be environmental or post harvest handling difference and not related to the coolers as speculated.

Goal #5: Foliage applications of boron and calcium will improve cut flower quality (GOAL) by increasing stem strength by 25%, length by 5%, bud diameter by 5% and decrease stem curvature by 50% (TARGET) over control plants (BENCHMARK) in one season.

Plants sprayed with Boron (B), calcium (Ca) and potassium (K) showed foliar absorption of B, but not Ca and K. No spray solution improved stem strength or increased stem diameter in 2014. The machine invented to determine bending distance prior to breaking fell short of our goal. Additional work on methods of securing the peony stems in the machine is needed to reduce errors.

Goal #6: Communicate results of studies to all Alaska peony growers (APGA and all others) and support personnel (CES, PMC, AFES (GOAL) within one year (TARGET) of project completion by publishing 2 scientific journal articles, 2 AFES bulletins, adding results to UAFalaska peony blog and presenting results at one APGA winter conference.

Results of this studies were shared with peony growers at the 2015 APGA meeting; 188 growers were in attendance. The full report has also been made available on the Division of Agriculture and APGA websites.

### **Beneficiaries**

The many beneficiaries of this project include the 200+ specialty crop producers in the State who are already growing peonies. The results of this project will be shared with them at the upcoming Alaska Peony Growers Association annual meeting; results are also available on our website and will be highlighted in an upcoming Division e-newsletter.

The researchers are preparing a manuscript to be submitted to the journal HortTechnology in May 2015.

### **Lessons Learned**

As with any research project, even though positive results were achieved, additional questions came up. When data findings are not consistent one year to the next, it is advised that the project be repeated again so as to gain more insight.

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### **Additional Information**

The full report can be reviewed on our website at [http://dnr.alaska.gov/ag/ag\\_grantsSCCGR.htm](http://dnr.alaska.gov/ag/ag_grantsSCCGR.htm)

Project #3 On-Farm Food Safety Workshop  
FINAL REPORT

### Project Summary

In order to enhance the competitiveness of Alaska Grown specialty crops, the Division has hosted on-farm food safety workshops in different regions of the State. When possible workshops included a mock Good Agricultural Practices (GAP) audits to help producers understand the requirements. As a result of attending one of these workshops, specialty crop producers increased confidence preparing them for access to more markets such as selling to restaurants, schools and other institutions that have stricter food safety requirements.

### Project Approach

Workshops were scheduled as requested by regions and/or farm events. The project assistant promoted the availability of the workshops through direct outreach to farmer's market managers, Cooperative Extension Service Agents, newsletter articles, and through posts in industry Facebook groups. The project assistant scheduled a workshop after at least five specialty crop producers committed to attending. While our workshops requests were infrequent we were able to meet community needs in all instances as well as an individual consult to a community that only had one producer.

Workbooks and other materials were purchased in bulk to reduce shipping costs.

### Goals & Outcomes Achieved

We are going to aggregate our pre-post survey results from the previously funded project since we used the same measuring tool. Our original pre-post survey used in the pilot phase of the our On Farm Food Safety Workshops was modified so those responses are not included. With the pilot participants included this program reached 147 producers; this data reflects the 113 producers that completed the exact same survey before and after the workshop. Out of all the participants 88.5% identified themselves as one of the following: farmer, hobby farmer, home gardener, or greenhouse owner. Over 80% of the participants reported selling product at a farmer's market, CSA's, and/or restaurants.

Goal: To increase specialty crop producers' knowledge of GAP and other on-farm food safety requirements through participation in a regional on-farm food safety workshop.

Specialty Crop producer's knowledge of GAP and other on-farm food safety requirements was significantly increased through participation in our regional on-farm food safety workshop classes.

Benchmark: Specialty crop producers' knowledge prior to attending the workshop will be measured through a pre-workshop survey.

Using a self-reported rating scale on level of knowledge the pre-survey results found a total score of 302 with an average rating of 2.88 from participant's data.

Performance Measure: Increase in on-farm food safety knowledge measured by pre- and post-workshop surveys.

Using a self-reported rating scale on level of knowledge the pre-survey results found a total score of 419 with an average rating of 3.92 from participant's data.

Target: 50% increase in knowledge regarding GAP and other on-farm food safety requirements due to attending an on-farm food safety workshop.

There was a 39% increase in the overall knowledge score from the pre/post data and 67% of the workshop participants showed an increase in knowledge of some sort. Since the scale was only 1-5 we believe the statistical results are a better measure of showing an increase in knowledge and are pleased to see those results affirming the change in knowledge.

We ran a Wilcoxon Signed-Rank test to look for a significant difference between the pre-post test results. Using a two-tailed hypothesis and testing for the 0.01 significance level we found that there was a significant difference in the participants self-reported measure of their knowledge of GAP and other farm food safety practices as a result of their attendance at our workshops. The z-value is -6.0146 with a p value of 0; the result is significant as  $p \leq 0.01$ .

Our goals for this project were fully achieved.

#### Beneficiaries

A total of 4 workshops were offered in this grant cycle with 50 people in attendance. Since this project built off previous funding we want to note that in total the On Farm Food Safety Workshops reached 12 communities and 147 people in attendance. We also completed a community presentation and a community consult with no pre-post assessment; those two additions reached a total of two communities and 35 people.

#### Lessons Learned

With the loss of the project assistant and the evolution of the Food Safety Modernization Act, this project was difficult to complete as intended. As a solution we were able to offer a modified version of basic farm food safety practices and point growers to proper experts as needed. Another challenge was getting enough interested producers in very small communities. To address this challenge we tried offering a "community food safety consultation" and had tremendous success. This was tested out with our Farm to School program to see if a community consultation would have value and we were extremely encouraged by the experience.

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### **Additional Information**

There were additional findings worth noting. While there was an increase in knowledge for all topic areas we saw a 46% increase in knowledge about tool, equipment, and harvesting container sanitation and a 40% increase in worker hygiene practices. The remaining topic areas showed a % increase between 27% and 34%. This could mean we need to simplify or spend more time on the other content areas of the workshop, another interpretation is that those lower scoring topic areas may not be as relevant to the growers who attended our workshops. Either interpretation hints that we could offer different types of workshops to more appropriately tailor the content to participants.

When asked to check the components that impacted food safety on a farm eight components scored below a 95% accuracy on the pre-test and all components scored 95% accuracy or better on the post-test. The four that fell below 90% accuracy on the pre-test were: water irrigation method, compost temperature, fertilizer storage, and equipment maintenance. These results tell us that there are four areas for potential risk and our workshop addresses those areas successfully.

Based off the post survey responses 38% of the participants either plan to get a GAP audit or are still thinking about it and 70% plan to do a self-audit. Over half the participants plan to write a food safety plan, 77% intend to make changes to farm food safety practices, and the two most common safety practices respondents plan to make are washing hands more often and cleaning/sanitizing containers and food contact surfaces more often.

Finally, we are pleased to report that more than 95% of the participants responded that the workshops either provided just the right amount of information or a lot of information but they would benefit from it.

## **Project #4 Interior Alaska Market Analysis**

### **FINAL REPORT**

#### **Project Summary**

During 2012 and 2013, over 20 Fairbanks vegetable farms worked towards the creation of a marketing cooperative. Farmers involved hoped this business would aggregate, market, and distribute produce for their farms. Most local vegetable farms sell their produce through direct-to-consumer markets, such as CSAs, farm stands, and farmers' markets; however many farmers were interested in reaching other markets, but have found it difficult, if not impossible, to sell to larger retail and wholesale markets. Some of the barriers include: the inability of producers to afford insurance required by larger buyers, inconsistency of supply from producers, time required of large purchasers dealing with numerous producers, and producer time involved in meeting requirements and systems of institutional and wholesale markets on an individual basis. Fairbanks farmers sought the creation of a marketing cooperative hoping that through establishing such an entity and attempting to work together they would be able to overcome many of those barriers.

The purpose of conducting a market analysis was to develop an understanding of the size and scope of the current and potential market for locally grown food, and to provide information with which growers

can determine what type of joint marketing effort would best increase net farm income. Specific areas incorporated into the market analysis included: an assessment of the regional wholesale market, consumer preferences, analysis of current suppliers at retail and wholesale level, and exploration of demand volume for locally grown produce at harvest. This will guide the development of the cooperative to be created in such a way as to have the greatest chance of success in reaching the most feasible local markets.

This project was important and timely as numerous institutions, wholesale, and retail markets have reached out to individual farmers due to their interest in buying local produce; however due to the barriers previously mentioned, these opportunities have not been fully capitalized on by either producers or purchasers. The farmers have found it difficult to further develop the prospective cooperative -which has a great potential of overcoming these barriers- without more concrete data on the market. Although many farmers have their own personal experiences to share on market demand, much of this information is anecdotal.

### **Project Approach**

Work on the project began in October 2013, when Fairbanks Economic Development Corporation (FEDC) put a call out to local farmers to serve on a steering committee for the market study. The steering committee meetings would be open to all to attend, and all farmers were repeatedly encouraged to provide their feedback during the entirety of this project. Jen Becker with Pioneer Produce, Brad St. Pierre with Goosefoot Farm, Susan Kerndt with Wild Rose Farm, and Avril Weirs with the Farm at Effie Kokrine Early College Charter School all volunteered to serve on the steering committee.

The first market study meeting was held in early November, and the steering committee met regularly up until the Final Report presentation given in April 2014. Meetings were held monthly at first, but by February 2014, the committee starting meeting biweekly. The purpose of a steering committee of local farmers was simple: it was extremely important to all entities and individuals involved that the information obtained and compiled by the study was relevant and beneficial to the local farming community. As such, farmers on the steering committee would serve as representatives for all Fairbanks vegetable farmers, providing regular and direct feedback for the market study.

With input from farmers, FEDC hired the Alaska Cooperative Development Program (ACDP) to conduct the research and work involved with the market study with support received from FEDC.

From the beginning of this project, farmers were asked to submit names of local vegetable produce buyer to which they would like to be included in the study. Seventy-seven business, institutions, and organizations were included and contacted to participate in the study. Of these 77, Christine Nyugen, the researcher with the ACDP conducting and compiling the information on the market study, met with 40. This was mostly due to the interest and availability of buyers to participate. Additionally, farmers were asked to suggest specific questions they would like asked of local vegetable buyers. A survey template was then created which outlined all of the items to be asked of buyers.

A separate survey was issued to farmers to gather information to help compare data collected from buyers with that of the farmers, such as vegetables local farmers were most interested in growing and the price to which they normally sold their products. Unfortunately, only seven local farmers responded to this survey, despite repeated inquiries to the other farmers. Many of the farmers who opted not to

respondent felt that either their farm was “too new” or “too small” for them to feel like they could provide accurate information that would be useful to the study.

### Goals & Outcomes Achieved

The goals of this project were completely achieved. As a result of the project, interior specialty crop producers now have the following information which was not available prior to this project.

- **Potential Market Size:** The potential market size is \$4,802,649 for the types of produce that can be grown in Alaska and available for the four-month growing season. Currently, the market size for all types of produce available in Fairbanks year-round is \$ 24,013,245.
- **Price Premiums:** Thirteen percent of buyers are willing to pay an additional 26% or more for locally grown produce. Fifty percent of buyers are willing to pay an additional 10-25%.
- **Most Marketable Vegetables:** Local broccoli, cabbage, cauliflower, and cucumbers are the most marketable vegetables since they have high quantity demand and are within the price range that would attract buyers. Local carrots, onions, and potatoes are somewhat marketable since they have high quantity demand, however local prices are higher than estimated price ranges that half the buyers interviewed would like to pay. Local kale and summer squash/zucchini are promising vegetables to market to niche buyers since the prices are less than prices for non-locally grown, but the quantity demand is relatively low compared to other vegetables.
- **Promising Sales Avenues:** Institutions have the high demand in new markets that producers are looking for; some institutions even have the financial means to pay more for local produce. However, selling to these high-volume buyers does require centralized coordination and consistent produce availability and quality. At the same time there are numerous restaurants seeking local produce and have the capacity to scale up local purchases. Restaurants not currently buying local seem to think that local produce is either cost-prohibitive or too limited in supply to meet their high-volume demands. These challenges can easily be offset by utilizing reward programs like Restaurant Rewards Program and pre-planning among the producers to try to meet their high-volume needs. Regardless, having a representative to participate in outreach and marketing for local products would be the most beneficial way to capture new interested buyers and reduce the buyer-demand/producer-supply market discrepancy.

FEDC conducted informal interviews with 10 farmers during the months of July and August to gauge the results of conducting the market study. Responses varied as to how beneficial each farmer believed the market study to be. However, it should be noted that farmers who were most directly involved in the project (attending the most meetings, provided feedback, served on the steering committee, etc) found it to be the most beneficial. Farmers reported that the information on price-points and scale of the larger market was the most useful information collected in the market study, as well as identifying which vegetables were most feasible and economically profitable to grow. A drawback of the study was the amount of farmers who responded to the survey. Some felt this made it more difficult to not only have more accurate information on farming taking place in the Interior, but also might reflect a true level of interest in working together or in farming altogether. Also, a few farmers expressed that they felt the market study monopolized too much of farmer time and interest and slowed down the momentum of working together towards a cooperative, rather than helped the effort.

Both the grant report and the full market analysis can be reviewed on our website at [http://dnr.alaska.gov/ag/ag\\_grantsSCCGR.htm](http://dnr.alaska.gov/ag/ag_grantsSCCGR.htm)

### **Beneficiaries**

There are a large number of beneficiaries to this project. More than 30 specialty crop producers participated in this project at some level and over 200 producers heard about the project during presentations given by the grant recipient. The final report is available on multiple websites – including the Divisions’ and was highlighted in the December Division E-newsletter which reaches over 600 individuals who have elected to receive it due to their interest in Alaska Agriculture. Producers in other regions of the State are using the project report as a model for how to conduct a market analysis in their area.

The 40+ specialty crop buyers who participated in the project are also beneficiaries as they now have a better understanding of some of the challenges that Alaska producers face.

### **Lessons Learned**

There is an incredible advantage to those producers who choose to work together cooperatively with other growers. We’re hopeful that the evidence provided by this project will be sufficient to encourage Interior Alaska specialty crop producers towards this conclusion.

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### **Additional Information**

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## **Project #5 Asparagus Trials** **FINAL REPORT**

### **Project Summary**

Specialty crop producers are continuing to expand production to meet the requests and demands of the food service industry. One product that is continually requested from both farmer market shoppers and chefs is asparagus. Research and field trials on asparagus have not been done in Alaska. This project will help identify emergence dates, pest prevalence, winter survivability and novel characteristics of 14 asparagus varieties.

Alaska has unique growing conditions that do not allow for direct fit of yield and performance criteria from other areas of the United States. Trialing asparagus variety performance in Alaska will help demonstrate the qualities or lack of desired traits when observed in Alaska’s climates. This planting will help identify those selections worthy of further evaluation.

This project is timely and important in addressing the needs of the specialty crop industry in Alaska due to the lack of any other asparagus variety trial research being conducted.

### Project Approach

- Alaska is a large state with different climates located throughout. Three locations with three different climates were found to conduct these trials. A site was selected in the Interior of Alaska, located in North Pole, Alaska, where the temperatures can range from above 90° F during the summer and minus 60° F during the winter. A second site was selected on the Kenai Peninsula, located in Nikiski, Alaska, where the temperatures are not as extreme as in the Interior. Summer temperatures rarely rise above 75° F and the winter temperature drops just below 0° F. The third location was located at the Alaska Plant Materials Center (PMC) in Palmer, Alaska. This location is within the area known as the Mat-Su Valley in Southcentral Alaska. The temperatures here are in between the two other locations, rarely above 80° F in the summer and can drop as low as minus 35° F during the winter.
- Growers in each of the chosen locations were found to participate in this trial; Moose Creek Farm in North Pole, Alaska, with an established, cultivated area and O'Brien Garden & Trees in Nikiski, Alaska with an unestablished, newly cultivated area. The area selected at the PMC, was an established area but had not been cultivated for several years.
- Soil samples were collected at each location and tested. Amendments were applied to each site according to the soil test results. The target amounts of nutrients were 100 lb/A Nitrogen, 250 lb/A P<sub>2</sub>O<sub>5</sub>, and 250 lb/A K<sub>2</sub>O for the first year. Ag Lime was also added to reach an optimum pH of 6.8. Soil tests were conducted again during the second year. Ag Lime was added again if needed for the pH adjustment. Nutrients were also added to each location to obtain 60 lb/A Nitrogen, 100 lb/A P<sub>2</sub>O<sub>5</sub>, and 100 lb/A K<sub>2</sub>O.
- Asparagus varieties that were easily obtainable were selected to trial for three growing seasons. The thirteen initial varieties selected were hybrids. During the second season an additional open-pollinated variety was added into the trial.
- In 2014 one-year crowns were acquired for 12 different hybrid varieties and seed for one hybrid variety. The crown material was stored in a cooler at the PMC until planting time. The seeds were germinated and grown in the greenhouses at the PMC until transplanting. In 2015 seed for an open-pollinated variety was acquired and grown at the PMC until transplanting.
- Every season the plots were evaluated for emergence dates, winter survivability, number of spears produced, average height of spears (from the base up to leafing), fern die back, and pest prevalence.

- Data loggers were installed at each location to measure the air temperature, soil temperatures at 6 inch and 12 inch depths, and soil moisture content at 12 inches deep.
- A site visit was conducted every Spring and Fall by PMC staff. Data was also collected by the participating growers throughout the growing seasons.
- The plots were maintained by the participating growers by use of cultivation and chemical weed control.
- Harvesting asparagus in Alaska has no set guidelines since it is rarely grown in Alaska. The seasons are much shorter than other parts of the U.S. so it will be researched further as the plots mature.

#### Goals & Outcomes Achieved

- Determine if asparagus is a viable crop for producers or market growers. Winter-hardy varieties were found at two of the locations. They were identified by their winter survivability and growth vigor. Yield data was not obtainable and needs to be researched further. Asparagus does not mature for three years and Alaska's growing season is short so the plots were not ready to begin harvesting yet.
- Weather data was gathered at each location for the duration of the project. This includes soil temperatures for two years which is valuable data.
- A presentation was given at the 2016 Alaska Sustainable Agriculture Research and Education Conference in Anchorage, Alaska. The conference was attended by professionals and growers from around the state.
- A publication will be made available on the PMC website when finished.
- Since the Produce Growers Conference was not held in 2016, a presentation was given at the Alaska Sustainable Agriculture Research and Education Conference in Anchorage, Alaska. The conference was attended by over 200 professionals and growers from around the state.
- A field day was not held since the plot at the PMC died and given the logistics of the other two plots on private property.
- The Alaska Division of Agriculture's Newsletter is now published quarterly and an article on the trial will be included in the next scheduled release. A final report will also be made available on the PMC website when finished.

#### Beneficiaries

- Over 500 farmers and market growers throughout the state will benefit from this evaluation trial. Approximately 100 of those are specialty crop producers participating in the Alaska Grown® Restaurant Rewards program. Asparagus could be grown in a large or small scale for many years. Some hybrid varieties are known to be highly productive for 10-15 years.

- Over 70 restaurants and chefs, participating in the Alaska Grown® Restaurant Rewards program would be able to offer asparagus on their menus. Tourism during the summer months creates a high demand on local restaurants offering locally grown food.
- Extension agents and master gardeners could benefit from this information for future recommendations and publications.

### Lessons Learned

- Sources for asparagus crowns to be shipped to Alaska are hard to find. Many of the sources available only offer a select few varieties. Most of the varieties used are easier to find as seed. Alaska's growing season begins much later than the rest of the U.S. and material sometimes is ready to be shipped before we are ready to plant. It is beneficial for a grower to produce their own seedlings if space is available. The only downfall to that is the delay in maturity versus starting with one-year crowns. A grower can also be guaranteed healthy plants by growing from seeds. The one-year crowns vary in size and condition with all of the sources available.
- Asparagus is a crop that is long-term so the planting site needs to be prepared for several years, i.e. cultivation, amendments and weed suppression, before planting. There was a substantial difference in production between the surviving plots, established versus unestablished planting sites.
- Alaskan climates vary greatly throughout the state. Winters can be very harsh in some locations. Due to the severe cold and lack of winter precipitation in Southcentral Alaska, it is very difficult for asparagus to survive. As long as there is adequate snow cover for ground insulation, asparagus will survive even when the air temperature is below minus 40° F. The plot located at the PMC was removed due to extreme winter-kill.
- Harvesting and yield data still needs to be studied in order to determine if asparagus can be a successful and beneficial crop to Alaskan growers.

### Contact Person

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### Other Additional Information

- Varieties Trialed and Sources for Plant Material
  - One-year Crowns – planted in June 2014
    - UC 157 – Peaceful Valley Farm Supply
    - Del Monte 361 – Scenic Hill Farm Nursery
    - Purple Passion – Stark Bro's Nurseries & Orchard
    - Pacific Purple – Nourse Farms
    - Jersey Supreme – Nourse Farms
    - Jersey Knight – Nourse Farms

Guelph Millennium – Nourse Farms

Jersey Giant – Daisy Farms

Mondeo – Daisy Farms

Porthos (NJ 1025) – Daisy Farms

Sequoia (NJ 1113) – Daisy Farms

NJ 1122 – Daisy Farms

○ Seed

Jersey Gem – Walker Brothers

- Germinated in greenhouse in February 2014, transplanted in June 2014

Sweet Purple OP – Park Seed

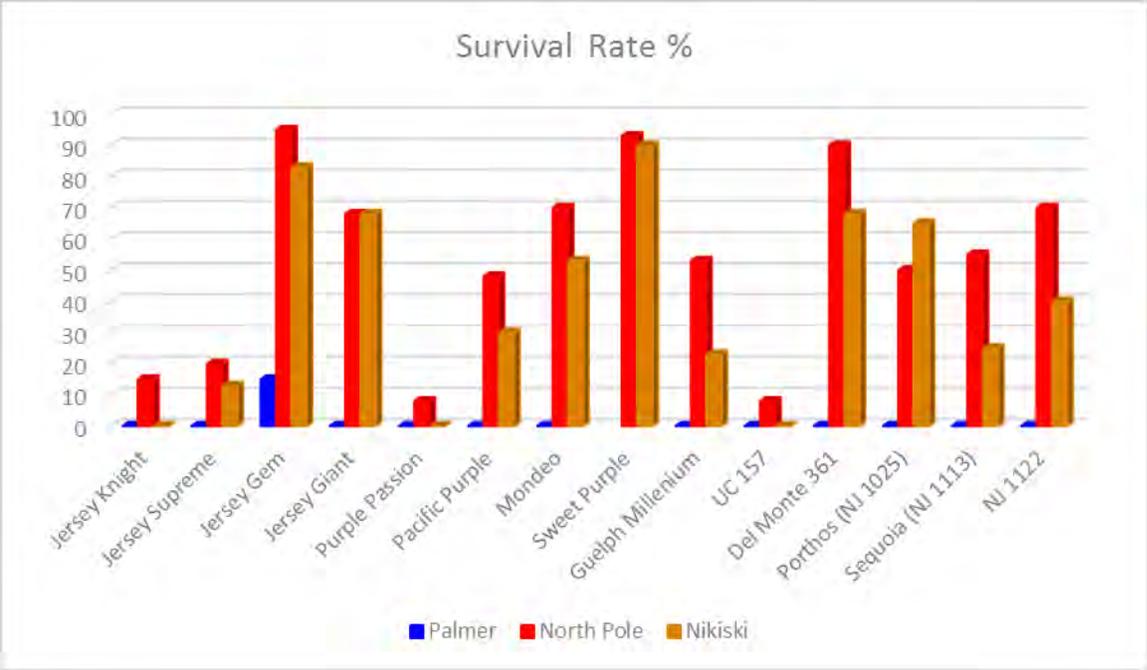
- Germinated in greenhouse in March 2015, transplanted in June 2015



Asparagus Seedlings



Asparagus Seedlings



Jersey Giant



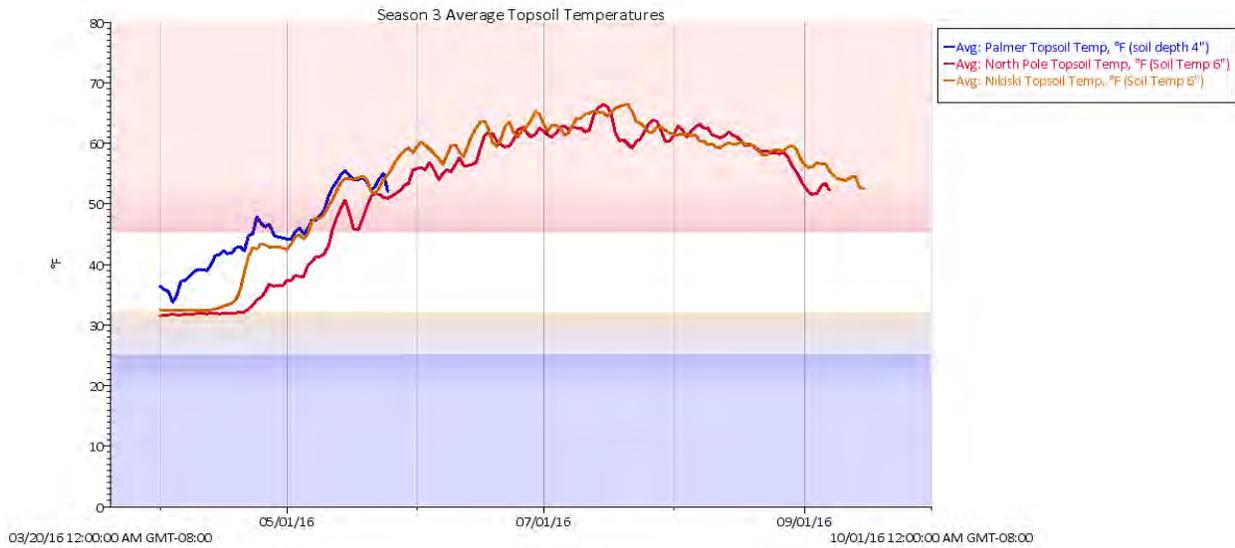
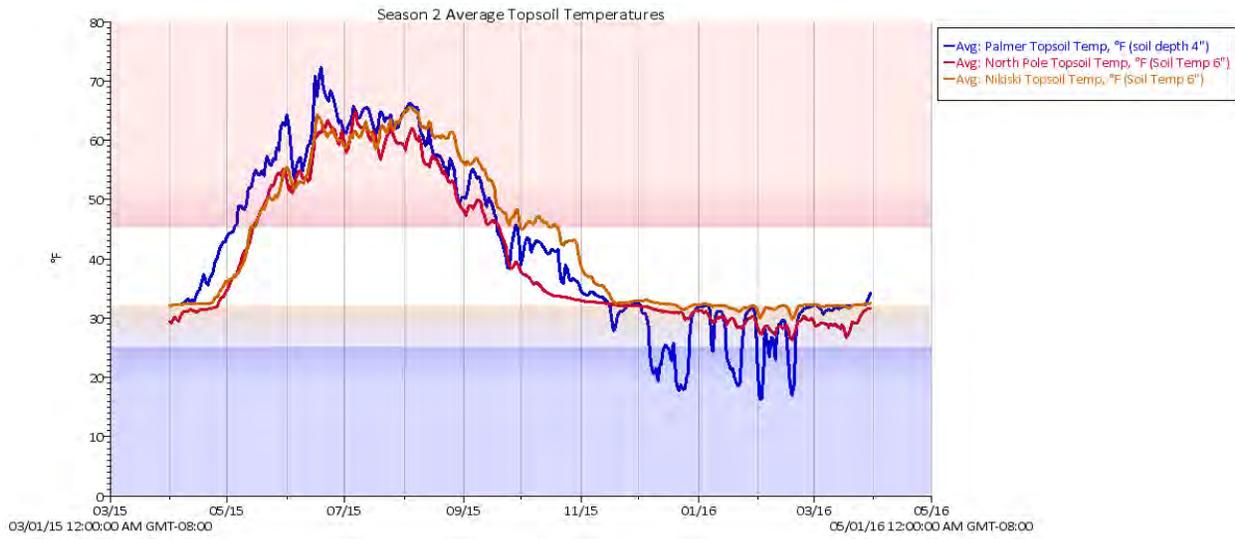
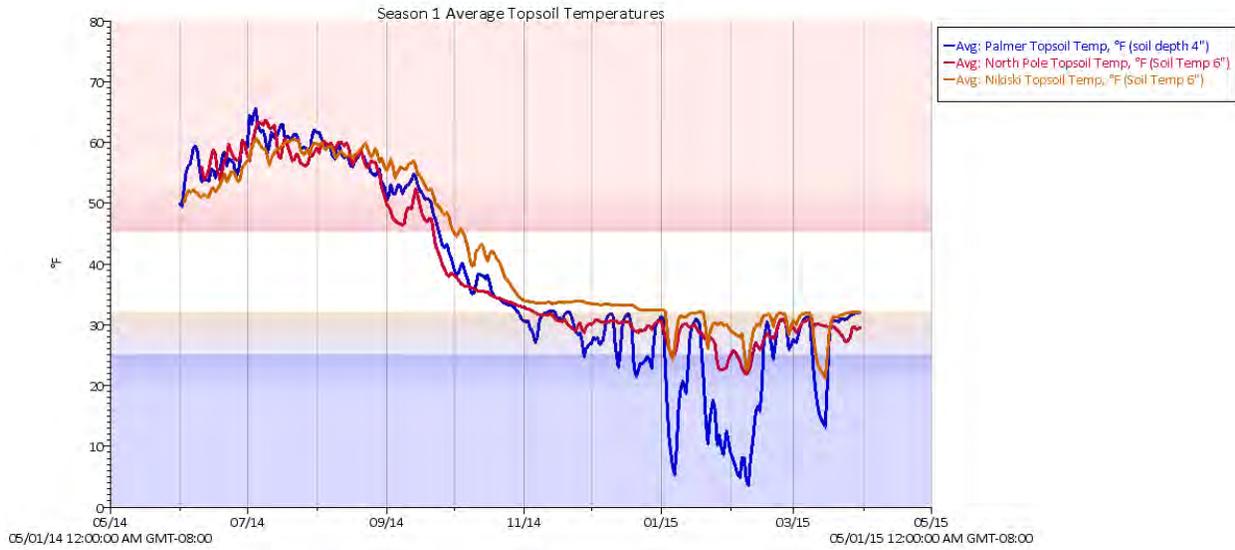
Jersey Gem



Del Monte 361



North Pole Plot



## Project #6 Specialty Crop to Summer Markets Project

### FINAL REPORT

#### Project Summary

Alaska Grown specialty crops have a fast but furious season in Alaska during the short summer months. To enhance the competitiveness of Alaska Grown specialty crops with such a limited window, the Division requested program funds to increase visibility and access to summer markets with a focus on retail, University / Hospital, and farmer's markets. Our first state-wide Farm to Hospital/University Mini-Grant opportunity launched this summer which is perfect timing to compliment this project. Additionally, this project assisted with educational resource development, outreach events, and promoting specialty crop producers at farmer's markets and retail outlets. The goals of the project were: 1) to increase the communication of specialty crop producers who are part of our Alaska Grown marketing program, 2) to assist with market visibility in social media, retail and farmers market sectors, and 3) to create educational resources for cafeterias using Alaska Grown specialty crops.

#### Project Approach

To assist with the market visibility in the farmer's market sector, the Division created a promotion called Meet Me at the Market. The interns contacted all of the markets in the state while updating the publicly available market contact information. They asked questions to gauge interest, suitability, and need. While all 44 farmers markets in the state were sent notification of the promotion, only 22 responded to questions. The Division compared answers, looking for level of need for increased visibility and ease of participation. A smaller group of markets was then contacted again with a revised version of the promotion to confirm their continued interest and narrow down the list to the final participating markets. Ultimately, 13 markets around the state were chosen to participate. Through the promotion, 50 to 100 Alaska Seafood/Alaska Grown bags were given to each participating market, as well as a survey about market purchasing. Each bag was pre-stuffed with an Alaska Grown infographic, a "Kid's Club" flyer, and a copy of the first issue of *Edible Alaska*. The markets were instructed to hand out the bags to people who mentioned hearing the promotion, once they filled out the brief survey outlining what they purchased and how they knew about the market.

The Division partnered with Alaska Public Media's "Kid's Club" program to run radio advertisements, and print advertisements were run both on Alaska Public Media's webpage and in the *Edible Alaska* magazine. Instructions for the finalized promotion were sent out to the participating markets. The interns attended selected markets across the state in June to get a pre-promotion count of people attending. Promotion materials were mailed or delivered to participating markets in the last week of June.

The Meet Me at the Market promotion ran for the entire month of July. The interns contacted and spoke to market managers in the middle of the month to gauge progress and answer any questions. The markets were instructed to end the promotion at the start of August, and advertisements were removed from circulation. The interns performed post-promotion market counts and follow-up questions to the

participating markets in late August. Market surveys were sent back to the division to be evaluated, although not all were received. Outside of the promotion, the Division created a publicly available online map detailing the location and contact information for all of the farmers markets in the state.

To assist with the market visibility in the retail sector, the Division delivered marketing supplies to all retail store in the state known to carry Alaska Grown produce. When marketing supplies were delivered, the interns talked to all the produce managers, asking what particular Alaska Grown produce did they carry, were there any issue of quality, and did they have any advice for producers attempting to enter the market. The consensus from the produce managers was that there were no issues with the quality of incoming produce, but that any advice on how to expand the market for Alaska Grown produce would have to come from higher up with the companies. No advisory board was created. The interns also reached out to retail locations not currently known to be selling Alaska Grown produce. Any retail locations that were buying produce from local farmers were added to our list, and given marketing supplies. Those that were not currently selling local produce were encouraged to contact our marketing director. The interns also began work on a publicly available online map of all the greenhouses in the state. The map is still in progress.

To assist with the market visibility in the university/hospital sector, the Division developed a Farm to University/Hospital Mini Grant funding opportunity. Early in August, all the hospitals and universities in the state were notified that the Division of Agriculture would be accepting mini-grant proposals for up to \$5,000 for projects that incorporated local specialty crops. Only one application was received by the deadline, and was subsequently approved.

## Goals & Outcomes Achieved

### Visibility:

- Map of farmers markets posted on social media once; 12,871 views on the post, 1,596 views on the map itself
- Posts on social media about specialty crops – 30 posts; 300,000+ views
- Posts on social media about Meet Me at the Market – 4 posts, 17,859 views (3 were just banner posts)
- Alaska Public Media had three :30 second radio message spots that aired weekly, Monday through Friday. They estimate that there were 509,400 gross impressions/ears listening, with a net reach/actual listeners of 55,800. On average, a listener heard the Meet Me at the Market promotion spot about nine times. The promotion was also featured on the station website, and was featured five times in the weekly e-blast newsletter that goes out to over 12,000 subscribers.
- *Edible Alaska* contained a half-page advertisement for the Meet Me at the Market promotion in the 10,000 copies of it's very first issue.
- Number of store visits: 56 initial visits, 40 follow-up visits

- Pre and post survey developed for MMM promotion, all markets were reached out to for participation
- Map created and made available of all locations of farmers markets; map of retail locations and greenhouses/nurseries also created for office use but could easily be made public
- Due to input from produce managers we did not pursue an advisory board or post survey results. Instead we worked on corporate contacts and processes for getting new growers into the retail market.
- From the surveys that were sent back to us, we found that most people hear about the local farmers market either through the internet (primarily Facebook) or through local word of mouth and road signs. The surveys also found that almost all customers at the markets are purchasing vegetables, fruits, or jams and jellies.

Market	Location	Market Hours	Time	Type	Date	Visit	Weather	# of Vendors	People Count
Southside Community Farmers Market	Fairbanks	4 - 7 pm	5 - 6 pm	Outdoors	6/14/2016	1st	Rainy, a little cold	4 specialty crop, and 1 information booth	31
					8/23/2016	2nd	Cloudy, warm evening	7 specialty crop, and 1 information booth	67
Tanana Valley Farmers Market	Fairbanks	11 am - 4 pm	12 - 1 pm	Outdoors	6/15/2016	1st	Beautiful, sunny, warm day	51 total vendors, 23 specialty crop	423
					8/24/2016	2nd	Beautiful, sunny, warm day	67 total vendors, 25 specialty crop	600
Farmers Fresh Market	Soldotna	3 - 6 pm	3 - 4 pm	Outdoors	6/21/2016	1st	Beautiful, sunny, warm day	12 vendors, all specialty crop	121
					8/24/2016* (received from market)	2nd	Cloudy, warm evening	14 vendors, all specialty crop	134
Colony Farmers Market	Palmer	12 - 7 pm	4 - 5 pm	Indoors	6/27/2016	1st	Rainy, a little cold	27 total vendors, 10 specialty crop	97
					8/1/2016	2nd	Gray day, a little cold	20 total vendors, 13 specialty crop	99
Muldoon Farmers Market	Anchorage	9:30 am - 2:30 pm	11 am - 12 pm	Outdoors	7/2/2016	1st	Beautiful, sunny, warm day	30 total vendors, 11 specialty crop	127
					8/13/2016	2nd	Grey day, not too cold	29 total vendors, 9 specialty crop	191

## Beneficiaries

With thirteen markets signed up in the Meet Me at the Market promotion we estimated 93 (-70%) to be specialty crop vendors. 1,100 customers benefited through receiving the promotional bag, magazine, and kids club bookmark. Market managers indicated that the promotional bags we gave out increased customer loyalty and hence return rate. We expect the remaining 30 markets that did not participate were also beneficiaries to a lesser degree since the advertising was about visiting farmer's markets in general. We also estimate that our retail specialty crop sales were positively impacted with increased attention to Alaska Grown specialty crops during the month of July.

## Lessons Learned

- We had to shift the procedure of the promotion after our first round of contacting farmer's markets. In the original procedure, customers at the market would only receive a bag if they went to a market manager's booth, showed the items they had purchased, and provided a password that would be in the different ads. The market manager would then be asked to keep a record of the types of items people purchased. Additionally, Alaska Public Media had planned to give out coupons to children that signed up for their Kid's Club program, and we had planned for markets to give out a single item for the coupon, such as a single carrot or radish. After discussing this procedure with potential participating markets, we revised this procedure to make it much simpler for the markets. We created a two-question survey that the customer would fill out when they received a bag, and Alaska Public Media removed the Kid's Club coupon. Instead, we provided each market with a stack of Alaska Grown temporary tattoos to be passed out to children, and Alaska Public Media put flyers for the Kid's Club program in each of the bags. We also informed the markets that if people were not asking after the bags, the market could pass out a few every day, so long as they had enough to last the length of the promotion in case someone asked.
- The promotion also difficulty getting feedback from all the markets at various times during the promotion. Of the 44 markets contacted, both to get their updated information and to ask them about participating in our promotion, only half of the markets responded before the deadline to participate. At the end of the promotion, the participating markets were asked to mail their completed surveys to the Division, but we only received three surveys from the thirteen markets.
- The suggestion for improvement that we heard most from the participating markets was to get more local advertising, as a state-wide ad is difficult to obtain. While Alaska Public Media is available on different stations all throughout the state, not everyone listens to it.
- Ultimately, we have learned that the Division of Agriculture must play a larger role if we are to run such a promotion again. Market counts and surveys should be run by Division employees to ensure that we actively reach the consumer base and receive as much useful information as possible.

#### Contact Information

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#### Additional Information

	<b>Did you see an increase in customers?</b>	<b>On a scale of 1 – 10, how successful do you think the promotion was? Why?</b>	<b>What improvements could be made?</b>	<b>Would you participate again?</b>
<b>Alaska Pacific University Farmers Market</b>	Yes, saw an increase	7; able to promote by giving things; not a lot of people had heard the ads	Longer period of time for promotion, as they still have bags to be handed out	Yes, absolutely

<b>Central Kenai Peninsula Farmers Market</b>	A big increase when the tours came in	9, Very successful; people loved the bags, brought them back to the next market; people saw the bags around town and searched for them	Advertise through newspaper	Definitely
<b>Colony Farmers Market</b>	No, numbers stayed about the same	2; no one had heard of the promotion; however, the bags were great for solidifying loyalty	Better ad program; local radio stations	Yes, with improvements
<b>Eagle River Farmers Market</b>	No, steady as usual	8, Pretty succesful; people excited about bags; spread through word of mouth, no one mentioned the promotion	Survey was great, but possibly ask where others might like to hear about updates; promote on Facebook	Yes, people loved the bags
<b>Farmers Fresh Market</b>	Yes	7; bags helped to increase loyalty, but very few people had heard of the promotion	Better figure out where to advertise	Yes
<b>Glennallen Wednesday Market</b>	No, numbers stayed about the same	4; local people already knew about the market, tourists didn't hear the advertising; people really liked the bags	No suggestions	Yes
<b>Highway's End Farmers Market</b>	Yes, a little	7; people were curious when they saw the bags	Find more local advertising	Yes
<b>Muldoon Farmers Market</b>	No, and less than last year too	9, Wildly succesful; people found the bags over facebook and seeing people with them, no radio or tv	The promotion worked as is; keep the bags	Absolutely
<b>Nenana Farmers Market</b>	Have not completed promotion			
<b>Southside Community Market</b>	Yes, saw an increase	8, Everyone loves the bags, but no one had heard about the promotion	Coordinate better with the markets for local boosting	Totally
<b>Tanana Valley Farmers Market</b>	Yes	7; the bags were popular, but very few people had heard of the promotion	Need to figure out where to advertise	Yes
<b>Willow Farmers Market</b>	Yes, saw an increase, although number of vendors also increased	6; the bags were very popular among the customers	No suggestions	Yes

<b>Wrangell Farmers Market</b>	No, but they try to schedule their markets to coincide with tour boats and festivals	8, No one had heard of the promotion, but people loved the bags; not even the word of mouth influenced the next market, though	Use Facebook more actively; local radio and newspaper; more promotion by local market	Yes, board is still interested
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