

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Agriculture and Food Security

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		20%	
205	Plant Management Systems	25%		30%	
213	Weeds Affecting Plants	15%		0%	
216	Integrated Pest Management Systems	28%		0%	
301	Reproductive Performance of Animals	5%		10%	
302	Nutrient Utilization in Animals	5%		5%	
305	Animal Physiological Processes	2%		10%	
401	Structures, Facilities, and General Purpose Farm Supplies	5%		5%	
405	Drainage and Irrigation Systems and Facilities	0%		5%	
601	Economics of Agricultural Production and Farm Management	5%		0%	
903	Communication, Education, and Information Delivery	0%		15%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	3.1	0.0
Actual Paid	8.0	0.0	14.1	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
681969	0	529813	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
318908	0	483055	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2225096	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research and outreach were integrated to assure that best management practices appropriate to Alaska were provided to target audiences. Work continued in resilience and adaptability of crops and animals to changes in the subarctic and arctic climate and revitalization in research and Extension programs relevant to regional and local agricultural production. An emphasis was placed on educating and training youth and adults for the Alaska workforce and continuing education and training programs that emphasize current needs as an aging workforce retires. Group and one-on-one educational activities with specific sectors of the pest management industry, the agricultural community and the horticultural industry provided individuals and businesses with important information. Increased reliance on the Internet and distance technology enhance delivery to more people. Partnerships assist in developing strategies to keep pest species below threshold levels. Outreach was provided through publications, Facebook, forums, tours, response to emails and phone calls and to walk-in stakeholders.

2. Brief description of the target audience

The target audiences include producers and consumers, communities, entrepreneurs, agribusinesses, industry leaders, individuals and groups concerned about the quality of the Alaska environment, public resource agencies, public and private resource managers, other faculty and researchers, and undergraduate and graduate students. Others include arborists, farmers, garden and plant associations, public and commercial greenhouses, homeowner associations, landscapers, state and federal park employees, gardeners, museums, military base personnel, boroughs and urban municipalities, pest control operators, property managers, public health organizations, public and private schools, recreational facilities, resorts and hotels, rural residents, youth groups and school districts. Advisors and the target audience include: Alaska Farm Bureau, the USDA Natural Resource Conservation Service, the USDA Forest Service, the Alaska Department of Natural Resources, borough governments and Alaska Native corporations.

3. How was eXtension used?

Some agents said they did not use it. One agent said the eXtension biopesticides information was provided to PSEP participants statewide and she gave the eXtension URL for gardens and landscapes to her Master Gardener class. Another used the eXtension search engine for resources.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	18587	137394	3325	7231

**2. Number of Patent Applications Submitted (Standard Research Output)
Patent Applications Submitted**

Year: 2014
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	5	12	17

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Output 1: Faculty will provide agricultural and horticultural workshops, short courses, classes, field days and conferences, including IPM.

Year	Actual
2014	169

Output #2

Output Measure

- Output 2: Faculty will provide agricultural, horticultural and pest management information through one-on-one consultations and consultations with other organizations. Output measure will be contact hours.

Year	Actual
2014	5205

Output #3

Output Measure

- Output 3. Horticultural crop research will concentrate on home and commercial varieties appropriate to Alaska. Publications and presentations are the output measures.

Year	Actual
2014	17

Output #4

Output Measure

- Output 4. Controlled environment horticulture will focus on CEA technology and technology transfer and appropriate crops and best management practices for crop production in specific environments. Output measures will be publications and presentations.

Year	Actual
2014	2

Output #5

Output Measure

- Output 5. Focus will be on best management practices for livestock management and production. Output measures will be publications and presentations.

Year	Actual
2014	21

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Outcome 1: Increase agronomic crop producers' ability to understand and assess best management practices of crop production. Measure will be workshops and publications.
2	Outcome 2: Increase livestock producers' ability to understand and assess optimum production practices.
3	Outcome 3: Increase participants' commercial and home horticulture best management practices.
4	Outcome 4: Increase the number of adopters of new technology and management practices.
5	Outcome 5: Increase the number of activities that monitor and control invasive species and pests.
6	Outcome 6: Improve and support horticultural producers' ability to understand and assess optimum production practices of promising new crops. Measure will be the number of producers assisted.
7	Outcome 7: Increase agronomic crop producers' ability to understand and assess best management practices of crop production. Measure will be number of individuals who adopted improved production techniques.
8	Outcome 8: Increase recognition of the value of weed-free forage and train individuals who are certified to become weed-free forage inspectors. Measure will be the number of inspectors trained and certified weed-free field inspections.
9	Outcome 9: Increase the number of individuals who are trained to safely apply pesticides. Measure will be the number of individuals trained for pesticide application.
10	Outcome 10: Multistate collaboration between researchers and producers could lead to new knowledge.
11	Outcome 11: Increase participants' commercial and home horticulture optimum food crop growing techniques and improve management practices. Measure will be the number of individuals who adopt improved practices.
12	Outcome 12: Increase producers knowledge of home and commercial production of poultry in Alaska. Measure will be the number of individuals who attend poultry educational activities.

Outcome #1

1. Outcome Measures

Outcome 1: Increase agronomic crop producers' ability to understand and assess best management practices of crop production. Measure will be workshops and publications.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A success story: The Alaska Flour Company grows and mills Sunshine hullless barley, a variety developed at the Fairbanks Experiment Farm. The owners, Bryce and Jan Wrigley, recognize that Alaska needs to create a food system that requires resources, market opportunity and a favorable business climate. He said Alaska's food insecurity is daunting, with 95 percent of our food imported, but they saw this as an opportunity.

What has been done

The Wrigleys were already grain farmers, but in 2010 they switched to growing 200 acres of Sunshine barley. The family analyzed the market, visiting other flour mills in Idaho, such as Pendleton Mills and Lehi Mills. They contacted an equipment broker, built a grain-cleaning building, bought packaging and purchased a truck. They had to get building, truck, content, product liability and commercial insurance policies. Five years later, they have built a new successful small industry.

Results

Products started with barley flour and now include whole barley, cream of barley cereal, roasted barley tea, barley couscous, two pancake mixes, whole cracked barley, barley brownie mix and a chocolate chip cookie mix. Marketing is done through presentations, Facebook (<https://www.facebook.com/AlaskaFlourCompany>) and their online store located at <http://alaskaflourcompany.com/store.html>. Their products are also being sold in Delta Junction, three stores in Fairbanks and two stores in Anchorage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

Outcome 2: Increase livestock producers' ability to understand and assess optimum production practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	67

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock production enterprises in Alaska provide meat and dairy products for commercial markets as well as agritourism enterprises in this state. Educating livestock producers will improve their ability to assess production practices. The program goal is to facilitate the development of management strategies to support sustainable, high-latitude livestock production.

What has been done

The livestock specialist taught workshops on environmental physiology and hay quality at three communities where livestock is raised. He also presented information about sustainable livestock practices and production and Alaska's red meat industry at the Circumpolar Agriculture Conference. The Extension veterinarian worked with other animal scientists to develop a survey for producers to determine what their needs are. The new veterinarian also began development of three YouTube videos aimed at producer education. Both consulted with livestock producers.

Results

The producers survey will be distributed in FY15 and guide future educational programming for producers. The YouTube videos on judging livestock condition, medicating livestock and identifying sick livestock will be released in FY15. As a result of a consultation with the livestock specialist, a producer has obtained Alaska-bred cattle with the goal of raising cattle for in-state use and export to the Asian market.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
401	Structures, Facilities, and General Purpose Farm Supplies
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Outcome 3: Increase participants' commercial and home horticulture best management practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	83

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Commercial and home growers produce flower, landscape and vegetable bedding plants. They face many of the same growing challenges as other producers, including a short growing season, cold soils and limited soil fertility. Research, education and outreach help them face these challenges and support new markets. Commercial peony production has begun to be profitable for growers.

What has been done

Seventy-four Alaskans have planted peony roots for cut flower production; 51 of these growers have achieved commercial status (> 500 plants in the ground). The remaining members of the

peony association are preparing ground for future plantings. Research and outreach supported production. Agents provided support to 67 potential and existing peony growers with site visits, soil analysis, weed management presentations and grower consultations. Two workshops reached 51 individuals interested in growing peonies in home gardens or commercial operations. The AFES peony expert presented peony growing information to a gardening symposium and a soil scientist presented research findings at a peony growers conference.

Results

Growers harvested 75,264 fresh-cut peony stems in 2014, more than double the yield in 2013. Alaska-grown flowers were shipped to 34 states and to markets in Alaska and Canada. Stems sold for \$2 to \$7 per stem. With an estimated yield of 10 stems per plant, we estimate the harvested yield of fresh-cut peonies will exceed one million stems by 2017. Although the outlook is positive, statewide yields are not sufficient to meet the demands of international markets at this time. The peony market is a direct result of AFES research and AFES/CES grower support. Evaluations from 16 participants in one peony workshop indicated they learned skills relating to preparing soil for peonies, peony diseases, pests and fertilizing.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
405	Drainage and Irrigation Systems and Facilities
601	Economics of Agricultural Production and Farm Management

Outcome #4

1. Outcome Measures

Outcome 4: Increase the number of adopters of new technology and management practices.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

With Alaska still importing most of its food, the ability to grow wheat would greatly improve its food security. Wheat varieties were developed long ago with no recent improvements for Alaska conditions.

What has been done

An AFES researcher and a graduate student at Washington State University have crossed several types of wheat to achieve a hard red spring variety that matures early and is shatter resistant. Evaluations are continuing of the three crosses to include non-shatter seed when ripe; early maturity; and high yields, no lodging. All will be compared to the same qualities of the parent, Ingal, and the three Canadian wheat varieties.

Results

The graduate student earned her Ph.D. in crop science from WSU and credits Glen Franklin of Delta Junction for helping fund her research. Franklin, retired from the Alaska Division of Agriculture, established an endowed graduate fellowship in crops and soils at WSU, stipulating that the research should benefit Alaska and Washington. One farmer in Palmer grew the new wheat and sold all his products in Anchorage markets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants

Outcome #5

1. Outcome Measures

Outcome 5: Increase the number of activities that monitor and control invasive species and pests.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska hosts thousands of visitors every year. The state also imports most of its food and many horticultural products, so it remains vulnerable to imported pests. Retail sales of plant materials contaminated with a variety of pests continue to challenge the state. Invasive weed infestation can reduce land values and agricultural productivity and negatively impact recreation, tourism and subsistence harvesting. Improving citizen, farmer and land manager ability to assess pest management practices is critical.

What has been done

Agents and integrated pest management staff hosted 89 workshops and presentations and worked with producers, agencies and individuals to identify 739 insect, plant and disease specimens. Development began on a phone app individuals will be able to use to identify invasive plants. A webinar series on invasive species management issues continued with presentations on weed seedling identification, trees and bird vetch, sweetclover and knotweed control. Pest technicians placed 243 insect-monitoring traps for species of concern, including the gypsy moth and nun moths. An invasive species conference was hosted in Fairbanks.

Results

IPM staff reported 6,624 contacts. The program serves as a proactive first detector for monitoring and outreach. No gypsy, nun, Siberian silk or rosy gypsy moths were detected with trapping efforts. The webinar series involved participants with affiliations ranging from the Department of Transportation and the Alaska Railroad to various landscape businesses, farmers and government land managers. The annual invasive species conference brought agencies and individuals together to coordinate invasive species response and research, especially regarding elodea and sweet clover. Following the Fairbanks conference, 70 percent of individuals who filled out evaluations indicated they had applied knowledge gained from past conferences. Ninety-five percent of respondents indicated they would use information gained from this conference. Continuing education credit was offered to certified pesticide applicators who attended.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #6

1. Outcome Measures

Outcome 6. Improve and support horticultural producers' ability to understand and assess optimum production practices of promising new crops. Measure will be the number of producers assisted.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rhodiola rosea is a medicinal plant that is native to Siberia and other cold regions. Since Alaska has cold soils, a short growing season but long day-length, rhodiola could be an ideal new horticultural crop. Information is still needed on growing conditions and protocols for harvesting and processing the roots, which are ready for harvest in four to five years.

What has been done

Agents provided support to 32 potential and existing Rhodiola rosea growers with site visits, soil analysis, weed management presentations and grower consultations. An agent assisted with the second commercial harvest of rhodiola and continued developing the protocols for processing the medicinal plant. He taught a workshop to 24 potential rhodiola growers. A specialty crop grant written by CES paid for a researcher to analyze chemical markers during the 2014 season.

Results

Rhodiola presentations and grower meetings have contributed to the beginnings of a new Alaska crop. According to the rhodiola cooperative, 12 farmers had 1,000 or more plants in the ground in the summer of 2014 and four producers had planted commercial quantities. One had 25,000 seedlings. Two farmers had their first harvest in 2014. A rhodiola cooperative processed one farmer's harvest with volunteers, which resulted in 150 pounds of dried root, which has been sold to individual buyers and a nutraceutical company. A third farmer's crop resulted in 380 pounds. Buyers have indicated an interest in buying a larger volume, according to the cooperative, which is selling the root for \$18 to \$30 a pound. The biochemical analysis provided information about root chemistry that is important to marketing and the ideal conditions for harvest. Protocols were developed for harvesting the plants to increase rosavin content.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants
601	Economics of Agricultural Production and Farm Management

Outcome #7

1. Outcome Measures

Outcome 7: Increase agronomic crop producers' ability to understand and assess best management practices of crop production. Measure will be number of individuals who adopted improved production techniques.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	40

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Educational opportunities and research-based practical advice offered to producers will help new producers enter the market and improve the economic viability of existing operations. The management of farm nutrients, pest scouting and pesticides also will improve financial sustainability of farm operations while making producers cognizant of environmental concerns.

What has been done

Several educational events were targeted to increase growers' knowledge and ability to raise agronomic crops. The Delta Farm Forum offered information about crop insurance and farm agency updates. The Produce Growers Conference included presentations on potato disease and growth numbers and on EQIP programs relating to nutrient management, and the Sustainable Agriculture Conference featured presentations on no-tillage grain production, potato diseases and organic seed potato production. An agent also presented information about growing grains at high latitudes. Nutrient and pest management plans were provided to agronomic producers associated with EQIP long-term contracts.

Results

Through the EQIP program in Delta and Kenai, 28 producers applied pesticides and nutrients at the specified rates and were educated in weed scouting and identification and soil sampling. Produce Growers Conference evaluations showed that participants of previous conferences used information on potato production, including varieties, disease concerns, fertility recommendations and soil testing. They also suggested topics for the 2015 conference. Nine participants in the farm forum indicated that they would use information about farm management, invasive plant control and future planting options.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants
601	Economics of Agricultural Production and Farm Management
903	Communication, Education, and Information Delivery

Outcome #8

1. Outcome Measures

Outcome 8: Increase recognition of the value of weed-free forage and train individuals who are certified to become weed-free forage inspectors. Measure will be the number of inspectors trained and certified weed-free field inspections.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	56

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

State and federal agencies may require individuals who cross their lands to use certified weed-free straw and hay. Demand for the premium-priced certified hay and straw is increasing due to more stringent requirements by federal and state agencies, as well as informed consumers. Federal refuges require the use of certified weed-free gravel.

What has been done

The Certified Noxious Weed-Free Forage Program educates grain and hay growers on management of particular invasive weeds in their crops. The Delta agent regularly receives inquiries from the Bureau of Land Management and from organizers of the two long-distance sled dog races, the Yukon Quest and the Iditarod, about the availability of certified straw. Agents also trained certified weed-free forage and gravel inspectors. During 2014, Extension provided 22 field inspections to certify weed-free forage and four inspections of gravel pits and consulted with 42 producers and inspectors.

Results

Field inspections of more than 1,800 acres of straw and hay led to weed-free forage certification of 800 acres and a higher price per bale for growers. The program encourages the in-state production of an inspected certified commodity for purchase and use by folks accessing the back country. The gravel and forage inspections will limit the spread of noxious weeds to natural ecosystems. Agents and staff trained 32 certified weed-free forage and gravel inspectors, many associated with state and federal land management. Because of an increased number of inspectors, the acreage of forage inspected in the Kenai area increased from 61 acres in 2013 to 202 acres in 2014. The first four gravel pit inspections occurred, covering 15 acres.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
903	Communication, Education, and Information Delivery

Outcome #9

1. Outcome Measures

Outcome 9: Increase the number of individuals who are trained to safely apply pesticides. Measure will be the number of individuals trained for pesticide application.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	162

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Pesticides can be important tools, but they can pose risks if improperly used. Alaska regulations require that anyone who engages in the custom, commercial or contract use of a pesticide or acts as a pesticide consultant must first become a certified pesticide applicator and must recertify every three years.

What has been done

Extension provided pesticide applicator training and the certification exam to individuals in Delta Junction, Anchorage, Palmer and Soldotna and eight rural locations via distance delivery.

Because of the difficulty individuals had completing the challenging math on the certification exam, two agents developed problems similar to the ones on the test and posted them on YouTube so individuals could practice beforehand. Continuing education credit required for recertification was offered at several conferences and webinars.

Results

Eighty-nine individuals were trained to safely apply pesticides at the three-day trainings and 73 applicators received continuing education. The Alaska Department of Environmental Conservation's most recent information reported an 89 percent exam pass rate for individuals trained by CES. Evaluations of two of the three-day pesticide application classes show that all 12 individuals increased their knowledge about pesticide labels, how speed, pressure and nozzle size affect application, product formulations, and state and federal regulations. Participants said they intend to read labels more than once, wear protective clothing, tank mix pesticides where possible and wash pesticide-soiled clothing separately. Individuals who were trained on aquatic applications applied herbicide on three bodies of water on the Kenai Peninsula to help initiate eradication of the waterweed elodea.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #10

1. Outcome Measures

Outcome 10: Multistate collaboration between researchers and producers could lead to new knowledge.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Research on good nutrition, which is crucial to maintain healthy reindeer herds in Alaska, is one of the key components of the Reindeer Research Program at the University of Alaska Fairbanks. In a new collaboration with the Reindeer Owners and Breeders Association, RRP has launched a study of "super willows" to determine if they could be beneficial for the reindeer diet.

What has been done

A shipment of 92 hybrid willow saplings from New York was planted at the Fairbanks Experiment Farm, in one plot that is naturally wet and one that is drier. Advice and assistance came from UAF horticulturists about best planting strategies. A moose fence was built around the plots to prevent browsing. RRP researchers will conduct nutritional studies and compare the "super willow" to other types of willow. Eventually, there will be a feed trial protocol.

Results

Free range system reindeer are highly dependent on the high protein of willows for muscle development. Willows are high in protein and reindeer utilize that in their muscles. Calves grow so fast the amount of protein and energy they require is quite high. Free range reindeer are well adapted to the arctic environment and have learned how to use forage. For producers raising them behind fences, nutrition research is imperative.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants
302	Nutrient Utilization in Animals

Outcome #11

1. Outcome Measures

Outcome 11: Increase participants' commercial and home horticulture optimum food crop growing techniques and improve management practices. Measure will be the number of individuals who adopt improved practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	425

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Horticulture is the largest agricultural industry in Alaska, amounting to more than 50 percent of cash receipts for all agricultural crops. Alaska imports most of its food and costs are high, particularly in rural areas. Dependence on imports poses a food-security risk if supply lines are interrupted. Teaching more residents how to garden or grow horticultural crops increases the quality of food available to consumers and lowers food security risk.

What has been done

Many composting and gardening classes include hands-on components. The Sustainable Agriculture Conference provided home and commercial horticulture information about vegetable plant breeding, attracting beneficial insects and pollinators, soil fertility and establishing a farm. Nutrient and pest management plans were provided to horticulturalists associated with EQIP long-term contracts. An agent has provided garden assistance to refugees from Bhutan who raised and sold produce at farmers markets.

Results

One hundred sixty-four Master Gardeners were trained and practiced the techniques they were taught. Nine months after the basic Master Gardener class in Anchorage, all 12 participants who responded to a survey said they had used course information, including growing new varieties or plants, fertilizer practices and pest management techniques. Thirty-eight participants of Sustainable Agriculture conference made changes in use of root cellars, fertilization, weed management, marketing and soil testing as a result of previous conferences. Agents worked with 168 high tunnel growers and other horticultural growers who were educated in weed identification and soil sampling and improved soil conservation. The refugee gardeners raised and sold produce valued at \$10,300. Eight of 15 gardeners had not gardened previously.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
405	Drainage and Irrigation Systems and Facilities
601	Economics of Agricultural Production and Farm Management

Outcome #12

1. Outcome Measures

Outcome 12: Increase producers knowledge of home and commercial production of poultry in Alaska. Measure will be the number of individuals who attend poultry educational activities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	198

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Raising poultry is challenging in Alaska conditions. Alaskans have expressed interest in raising chickens because of a greater interest in growing local foods and more lenient urban rules about raising poultry. Raising chickens increases Alaska food security through egg and meat production.

What has been done

Three agents taught seven classes to 198 individuals in four communities, providing information about raising chickens, coop design and safe egg production. A DVD was developed on raising chickens from chicks to full-grown laying hens, with information about varieties, equipment and tips for becoming an egg producer.

Results

Participants in chicken classes learned how to provide their own meat and eggs safely. Participants indicated that they would select appropriate breeds and build coops for cold climates, change perch design and wash eggs in water that is 90 degree or hotter to prevent E. coli and salmonella. Home and farm visits have shown that Alaska flocks are experiencing a much lower incidence of cold weather injury. Following a poultry processing practicum at the Juneau Chicken Summit, two participants expressed interest in broiler chicken production and others indicated that information would improve their current operations. As a result of evaluations from the 2013 Chicken Summit, the 2014 summit included the practicum and spread lectures and coop tours over two days to allow more people to participate. As a result of the 2014 evaluations, tracks for

beginning and advanced growers were planned for the 2015 summit.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
401	Structures, Facilities, and General Purpose Farm Supplies
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The high cost of petroleum products, fertilizers and other inputs impacts the productivity and the economic viability of horticultural and agricultural operations in the state. The small number of agricultural faculty and staff presents a challenge to providing a supporting role for horticultural and agricultural production. In a state where oil production is a top priority, agriculture is relegated to a much lower priority by policymakers. Other challenges include the geographic distances between communities and high transportation costs involved in traveling to communities off the road system. IPM contact numbers remained lower than usual in 2014 because of an unfilled full-time position for the entire year. Economic factors will affect the experiment station as retiring faculty and staff and the inability to replace them affects research productivity.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

CES agents used surveys after major conferences and many agents surveyed following individual classes. We are learning through surveys what areas interest clients for future programming and what they have used from previous workshops. Comments on the 2013 Chicken Summit led to additional programming in 2014, including a chicken processing workshop and coop tours spread over two days. Comments on the 2014 Sustainable Agriculture Conference evaluation indicated that 38 people have used information from past conferences, including information about cover crops, soil fertility, composting, weed management and rainwater collection.

Nine months after the basic Master Gardener class in Anchorage, all 12 participants who responded to a survey said they had used course information, including information about how to grow new varieties or plants, fertilizer practices and pest management techniques.

Produce Growers Conference evaluations showed that participants of previous conferences used information on potato production, including varieties, disease concerns, fertility recommendations and soil testing. They also suggested topics for the 2015 conference.

Chicken Summit evaluations by five individuals indicated that all considered the summit to be either good or excellent. They particularly liked presentations on coop designs and materials and specific breed characteristics, and a chicken experts panel.

Evaluations from 16 participants in one peony workshop indicated they learned about skills relating to preparing soil for peonies, peony diseases, pests and fertilizing.

Participants were surveyed five months after completing an herb workshop and 65 percent of the 17 respondents said they had grown herbs they had never grown before, and 40 percent changed their production practices for basil or cilantro.

Key Items of Evaluation