

# 2016 University of Alaska Combined Research and Extension Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

Alaska is recognized for its immense size, dispersed population and its cultural, geographic and environmental diversity. The state represents a major region of renewable and nonrenewable natural resources in the United States. Its 365 million acres include the nation's largest oil reserves, coal deposits and two largest national forests. The state also contains an array of mineral deposits, including gold, zinc, boron, molybdenum and rare earth minerals. Alaska has a diverse geography that offers soils for production of food, fiber and biomass fuels as well as a multitude of recreational and tourism activities. Waters surrounding Alaska's shoreline and riparian habitats contain large stocks of salmon, cod, pollock, halibut, herring, crab and shrimp that support thriving commercial, sport and subsistence fisheries.

Alaska's natural resources have historically been the foundation of the state's economy, though resource industries have been mostly extractive in nature. During the past 40 years, Alaska's economy has become dependent upon revenues related to petroleum development. To diversify its economy, the state is moving toward non-petroleum natural resources for economic opportunities that are cost-effective and sustainable. The use and management of these resources is a predominant force in the planning and delivery of teaching, research, Extension and engagement programs.

Our combined unit has been known as the School of Natural Resources and Extension (SNRE) since July 1, 2014, after the formal merger of the School of Natural Resources and Agricultural Sciences (SNRAS) and the Agricultural and Forestry Experiment Station (AFES) with the Cooperative Extension Service (CES). The programs of AFES and CES play a vital role in linking the knowledge generated at the university to meet the needs and interests of Alaskans. Citizens are provided opportunities through engagement to influence future research and education priorities. SNRE is a critical partner for the university, providing a linkage among researchers, Extension and Alaskans to deliver the latest research findings, educational and outreach opportunities.

Planned programs for purposes of this report include Agriculture and Food Security; Natural Resources and Community Development; Healthy Individuals, Families and Communities; Climate Change and Ecosystem Management; Youth Development; and Sustainable Energy. Climate change, while addressed primarily in one planned program, affects all the program areas.

Alaska imports over 90 percent of foods and other agricultural products. As the population grows and transportation costs increase, more locally and regionally produced food will be needed to provide greater food security. To this end, growers in the agricultural sector produce fresh market potatoes, vegetables and herbs; forages, grains and manufactured livestock feeds; controlled environment products, which include bedding plants, florals, landscape ornamentals, and short season vegetables; and a variety of niche market crops. One such crop, peonies, has been one of our success stories and *Rhodiola rosea* also continues to show potential.

Many Alaskans live a subsistence lifestyle or supplement their diets with local fish

and game meat. Alaska also has a large military population, and most have not previously preserved game meat or fish. Our state has one of the nation's highest rates of botulism, making it imperative to provide much needed information on safe preservation of these staples. Food safety is also a concern for food industry workers, who need required training, and small food business entrepreneurs.

Alaska also has one of the fastest growing senior populations, who face the challenge of remaining active and healthy in a demanding environment. Other concerns that define health and nutrition programming are the high rates of child and adult obesity and diabetes. Indoor air quality is a particular Alaska concern.

High energy costs remain a critical issue, particularly in rural Alaska. Research and outreach have focused on new and alternative sources of energy, wood and biomass and energy conservation.

The mission of SNRE is to provide new information to manage renewable resources and to improve technology for enhancing the economic well-being and quality of life at high latitudes. While foresters, farmers and land managers use our research results, all Alaskans benefit from the wise use of land resources. Our research projects are in response to requests from producers, industries, and state and federal agencies for information in plant, animal and soil sciences; forest sciences; and resources management.

AFES priorities, like national priorities, are to enhance sustainability of food and agricultural systems; adapt to and mitigate the impacts of climate change; support energy security through the development of renewable natural resources; ensure a safe, secure and abundant food supply; improve human health, nutrition and wellness; support environmental stewardship through the development of sustainable management practices; and strengthen individual, family, and community development and resilience. Experiment station scientists publish their research in scientific journals, conference proceedings, books, and in experiment station bulletins, circulars, newsletters, research progress reports and miscellaneous publications. Scientists also disseminate their findings through conferences, public presentations, workshops and other public information programs like websites and blogs.

Administratively, AFES is an integral part of SNRE. This association provides direct links between research, teaching and outreach. Scientists who conduct research at the experiment station also teach, sharing their expertise with undergraduate and graduate students, adult learners and Extension faculty and staff.

Cooperative Extension's mission is to educate, engage and support the people and communities of Alaska, connecting them with their university. Extension provides factual and practical information while bringing Alaskans' issues and challenges to the university. CES is committed to promoting the sustainability and economic security of individuals, families and communities by providing practical, non-formal education, including conferences, workshops and cooperative work with community, regional and tribal partners. Outreach is also provided through publications, consultations, newsletters and social media outreach dedicated to district information and locally useful subject matter. CES programs address national priorities by helping families, youth and individuals be physically, mentally and emotionally healthy; enhancing workforce preparation and life skills; strengthening the profitability of animal and plant production systems; protecting our rich natural resources and environment; ensuring an abundant and safe food supply through horticulture and food preservation education; preparing for and responding to natural disasters; and fostering greater energy independence.

Programming respects cultural and ethnic diversity and is responsive to emerging stakeholder needs and interests. Programs result from client requests, an active state advisory council, various regional and subject matter advisory groups, surveys and needs assessments. Our national partnership with eXtension has also helped with reaching stakeholders.

Agents answer stakeholder questions through eXtension Ask an Expert, participate in communities of practice, and incorporate eXtension resources into their programming. The eXtension provision of Qualtrics access has been critical in maintaining our evaluation efforts.

The merger has allowed SNRE to provide more unified support for agriculture, horticulture, forestry, and rural and economic development. Collaborations with other universities and with other units within the University of Alaska Fairbanks, the University of Alaska statewide system, federal and state agencies, nongovernmental organizations and private industry continue. Stakeholders include K-12 students, higher education students, researchers, individuals, businesses, industry, government, nongovernmental organizations, and families and communities throughout Alaska, the circumpolar North and the nation. SNRE brings the university to Alaskans while bringing community concerns and issues back to the university.

**Total Actual Amount of professional FTEs/SYs for this State**

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	45.0	0.0	16.5	0.0
Actual	57.6	0.0	20.7	0.0

**II. Merit Review Process**

**1. The Merit Review Process that was Employed for this year**

- Combined External and Internal University Panel
- Combined External and Internal University External Non-University Panel
- Expert Peer Review

**2. Brief Explanation**

The Agricultural and Forestry Experiment Station (AFES) uses the scientific peer review process to review and evaluate proposals, publications and specific annual reports that include the annual narratives that are required to report activities related to the POW. Extension uses the merit review process and the general review process for this joint annual report and Plan of Work. AFES complies with sections 3(c)(1) and (2) of the Hatch Act and section 1445 of NARETPA (Hatch Regular Capacity Funds) and the amendment to the Hatch Act of 1887 to Section 104 by AREERA for programs funded under section 3(c)(3) of the Hatch Act (Hatch Multistate Research Funds) by using its established scientific review process for all proposals, publications and specific annual reports.

All new and revised Hatch (and McIntire-Stennis) project proposals undergo scientific peer review. The blind peer review panel is composed of a minimum of three members and consists of competent authorities in the discipline of the proposal/publication/annual report or related disciplines. Each reviewer completes a Peer Review Form that includes specific criteria, provides for other comments and suggestions, and makes a recommendation to the director. Reviews are returned to the author(s) for revision if needed. The director reviews all comments and recommendations from the reviewers, along with the revised proposal/publication/report. Scientific peer review of multistate research projects are carried out for individual projects under the aegis of the Multistate Review Committee (MRC- formerly RCIC). The director of research is a member of the MRC. All faculty who are participants in Hatch multistate projects are required to have an approved Hatch General project that is related to the field of study of the multistate project.

SNRE has an evaluation specialist who helps design outcome and impact evaluations, working with faculty to evaluate individual programs. In FY16, outreach faculty were again required to include hours dedicated to evaluation in their workloads. Many workshops and all conferences are evaluated.

### III. Stakeholder Input

#### 1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals
- Survey of selected individuals from the general public
- Other (SNRE Website, Newsletter & Blog, CES Facebook and Twitter)

#### Brief explanation.

AFES's Advisory Council has nine members drawn from agriculture, natural resources, forestry, mine engineering and economic development. SNRE interacts with regional audiences around the state in both formal and informal settings each year. Examples of these include:

- Regional and Statewide Farm Bureaus
- Delta Farm Forum
- Alaska Produce and Greenhouse Growers
- Kawerak Native Association
- Reindeer Owners and Breeders Association
- Alaska Livestock Producers
- Alaska Peony Growers Association
- Alaska Food Policy Council
- On-demand meetings at the request of stakeholders
- Delta Harvest Wrap-Up

Since much of Alaska land is under federal and state agency control, natural resource stakeholders include government land managers. Federal stakeholders for SNRE include:

- National Park Service
- USDA/NRCS, ARS, Forest Service
- Bureau of Land Management
- Bureau of Indian Affairs
- U.S. Fish and Wildlife
- U.S. Geological Survey

State stakeholders include:

- Fairbanks North Star Borough
- Matanuska-Susitna Borough
- North Slope Borough
- Fairbanks Economic Development Corporation

- Department of Natural Resources
- Division of Agriculture
- Division of Forestry
- Department of Environmental Conservation
- School districts around the state
- AHTNA Native Corporation
- Afognak Native Corporation
- Chena Hot Springs Resort
- Pike's Waterfront Hotel and Greenhouse
- Diversified Livestock Association
- Alaska Food Policy Council
- Tanana Valley Farmers Market
- Alaska Natural Fiber Business Association

Extension sponsors agricultural and horticultural conferences and outreach activities. Formal and informal stakeholder input is gathered there. Stakeholders are also invited to serve on various conference planning committees. Outreach events in FY16 included the Delta Farm Forum, Alaska Sustainable Agriculture Conference, the Alaska Invasive Species Conference and the Harvest Wrap-Up.

Extension has a 13-seat Statewide Advisory Council, which provides guidance about programming across the state. Representatives are drawn from all regions of the state. The State Advisory Council meets face to face once a year as well as through four audio conferences. Local advisory committees provide community input related to local program needs and interests. Additionally, advisory councils provide guidance on mining and 4-H programming.

Extension faculty members gather stakeholder input as part of their program planning and development process as well as surveys following instructional activities. Faculty, staff and administrators within Extension are also members of the advisory committees and boards of organizations that are stakeholders of the organization. This service on committees and boards provides another venue for stakeholders to provide input to Extension. 4-H has programmatic audios with stakeholders that generate suggestions. Forestry, sustainable agriculture, 4-H, home economics, and Master Gardener newsletters, and the backyard chickens, Master Gardener, and energy blogs also provide outlets for stakeholders. CES further invites stakeholder participation through social media via a statewide and two district Twitter feeds, an overall Facebook page and 15 district, 4-H and subject matter Facebook pages.

**2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them**

**1. Method to identify individuals and groups**

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

**Brief explanation.**

Stakeholders include individuals and groups who would logically benefit from Extension's services. Other stakeholders are partner agencies organizations and related stakeholder organizations. Examples include the Farm Bureau, Grange and Farmers Union, as well as Master Gardener associations and food banks. Additional stakeholder groups are Alaska Native tribal organizations,

school districts and village governments who request services to help build community educational and development capacity. A number of stakeholders identify themselves by calling or e-mailing Extension faculty or staff. Individuals and groups have been identified through advisory committees, working with agencies that have similar missions, and work with community, religious and workforce groups and other units of the university. Subject area advisory groups, the 4-H leaders' organization and the State CES Advisory Council provide stakeholder input.

AFES stakeholders are research collaborators, partners in federal or state agencies who approach us with funding or needs, the public who often call and solicit assistance, graduate and undergraduate students, public schools that connect through reindeer programs or the OneTree program, K-12 teachers, and agriculturalists, forest land owners, entrepreneurs and other end user groups.

## **2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them**

### **1. Methods for collecting Stakeholder Input**

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Survey of the general public
- Meeting specifically with non-traditional groups
- Meeting with invited selected individuals from the general public

### **Brief explanation.**

SNRE relies on stakeholder input from advisory groups, collaborators, federal and state agencies, colleagues, faculty, students and other appropriate constituencies for assistance in establishing priorities and developing program direction. Current major stakeholders include the Fairbanks North Star Borough, Matanuska-Susitna Borough, Reindeer Herders Association, Northern Forest Cooperative, Peony Growers Association, Fairbanks Economic Development Corporation, and industries involved in food, fiber and fuel/energy production. Feedback from the Georgeson Botanical Garden Society, local community supported agriculture groups, local restaurants and resorts provide research direction.

Other significant stakeholder groups include state and federal and private organizations that have professional and programmatic relationships or direct interest in the unit's programming. Some of Extension's major stakeholder organizations include but are not limited to the Farm Bureau, Grange, Alaska Energy Authority, greenhouse growers, food banks, Boys and Girls Clubs, school districts and research units of the university. Additional stakeholder groups are Alaska Native tribal organizations, school districts and village governments that request services to help build community, educational and development capacity. Input is collected from workshop participants through surveys following conferences, classes and workshops, either immediately through paper and/or guided discussion, or as follow-ups by electronic or mail-in surveys. Input is also collected individually by agents, through needs assessments and through programmatic advisory groups and memberships on relevant partner committees.

### **3. A statement of how the input will be considered**

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs

- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities
- Other (Underserved populations identified)

**Brief explanation.**

SNRE joint research and outreach planned programs are directly related to the strategic plans produced by faculty as well as the direction set by administrative leadership. The AFES plan reflects ideas and advice given by client user groups, students, expert advisors, state and national peers and cooperators, and UAF administration. During the FY16 reporting period, the focus areas of sustainable energy, local and regional food production and food safety, and the need for adult and youth education and training to fill Alaska job and career demands were addressed. These focus areas were used to set priorities in meeting the need for knowledge about Alaska and circumpolar resources. Input was considered in the budget process. Capacity funds were used in response to research needs based on the emerging focus areas.

An updated SNRE strategic plan is in development with input planned from stakeholders, advisory councils and the public. It builds on the past focus areas of food safety and security, health, climate, energy, youth, families and communities, and economic development by adding emphasis on strengthening SNRE's relevancy, capacity and collaboration in those areas. Agents' work reflects the strategic plan. Stakeholder needs will continue to be a driving factor in determining Extension priorities and programming. Agents use stakeholder input to identify programming needs and work to offer programs and information that meet those needs. Stakeholder input in FY16 continues to support the need for youth outreach in rural Alaska, health and nutrition programming, pest management and programs on biomass and responsible wood burning. Interest in locally raised agricultural animals and food production continues to be high. Stakeholder involvement on conference planning committees and input at conferences led to specific topics and speakers at subsequent conferences.

**Brief Explanation of what you learned from your Stakeholders**

Alaskans continue to desire information necessary to make decisions related to a healthy lifestyle and a healthy economy. Food security, energy, climate change, obesity, chronic health issues and youth development have risen to the forefront as areas of particular importance and are therefore leading to development of research and Extension programming, particularly in subsistence, small farm agriculture and energy. Interest continues for research on animal reproduction and quality meat production techniques. There is also strong interest in culturally relevant programming, local food production, health and nutrition programming, family finance, budgeting and estate planning, and programs that focus on reducing violence and reducing energy consumption.

**IV. Expenditure Summary**

<b>1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)</b>			
<b>Extension</b>		<b>Research</b>	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
1193757	0	1262554	0

<b>2. Totaled Actual dollars from Planned Programs Inputs</b>				
	<b>Extension</b>		<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	1161721	0	1141084	0
<b>Actual Matching</b>	1270869	0	1228138	0
<b>Actual All Other</b>	5971739	0	767889	0
<b>Total Actual Expended</b>	8404329	0	3137111	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous</b>				
<b>Carryover</b>	0	0	0	0

**V. Planned Program Table of Content**

<b>S. No.</b>	<b>PROGRAM NAME</b>
1	Agriculture and Food Security
2	Natural Resources and Community Development
3	Healthy Individuals, Families and Communities
4	Climate Change and Ecosystem Management
5	Youth Development
6	Sustainable Energy