

# 2012 University of Alaska Combined Research and Extension Plan of Work

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## I. Plan Overview

### 1. Brief Summary about Plan Of Work

Alaska is recognized for its immense size and sparse population and its cultural, geographic and environmental diversity. The state represents a major region of renewable and non-renewable natural resources in the United States. Its 365 million acres include the nation's largest oil reserves and coal deposits. The state also contains an array of mineral deposits, including gold, zinc, boron, and molybdenum. 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 and shellfish 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 predominantly extractive in nature. Thus, the use and management of these resources is a major force in the planning and delivery of any teaching, research, extension, and engagement programs. The finite nature of the state's non-renewable resources, local and national controversies surrounding resource extraction and related environmental concerns, and the need to sustainably manage the state's renewable resources affect the activities of the School of Natural Resources and Agricultural Sciences and the Agricultural and Forestry Experiment Station (SNRAS/AFES) and the Cooperative Extension Service (CES). The University of Alaska Fairbanks, in general, and SNRAS/AFES and CES, in particular, meet the challenges and increasing demands for research, education and outreach relevant to sustainable management of Alaska's resources by bringing communities' ideas to the university for further development of the state's resources.

During the past 40 years, Alaska's economy has become dependent upon revenues related to petroleum development. To diversify its economy, the state is attempting to move toward non-petroleum natural resources for economic opportunities that are cost-effective and sustainable. The programs of SNRAS/AFES and CES play a vital role in linking the knowledge generated by SNRAS/AFES, the University of Alaska Fairbanks, the University of Alaska statewide and other information sources to meet the needs and interests of Alaskans, then providing citizens a way through engagement to influence future research and education priorities. CES is a critical partner for the university as a whole in providing a two-way engagement linkage between researchers and producers to deliver the latest research findings and educational and outreach opportunities.

Alaska imports a high percentage of foods and other agricultural products consumed in the state. Growers in the agricultural sector produce products primarily for in-state consumption including fresh market potatoes, vegetables and herbs; forages, grains, and manufactured livestock feeds; and controlled environment products, which include bedding plants, florals, landscape ornamentals, short season vegetables and a variety of "niche market" crops. Livestock enterprises include dairy, beef, swine, reindeer, and nontraditional livestock species such as muskoxen, elk, and bison. Producers will require increasing information specific to northern latitudes as consumer demand increases due to changing preference and a growing population. Furthermore, as transport costs increase and the Alaska population grows, more locally and regionally produced food will be needed to feed the Alaska citizenry.

## MISSION STATEMENTS

The mission of SNRAS/AFES is to generate and provide knowledge and train students for successful

long-term management of natural renewable resources in Alaska and the circumpolar world, and to discover, describe, explain, and interpret the spatial characteristics of the northern regions of the earth. The School and Experiment Station are committed to assisting and training natural resource managers who make and implement decisions to develop, sustain, or protect natural systems to meet human needs and values.

Cooperative Extension's mission is to educate, engage and support the people and communities of Alaska, connecting them with their university. It 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 services that promote the wise use of natural resources, respecting cultural and ethnic diversity, and being responsive to emerging stakeholder needs and interests.

## **LINKAGES**

The elements of this report show strong linkages between CES and SNRAS/AFES supporting agriculture, horticulture, forestry, and rural and economic development. The units work cooperatively as well as separately with other units within UAF, the University of Alaska statewide system, federal and state agencies, non-governmental organizations, private industry; and through multistate collaborations with other land-grant universities. They collectively and individually generate and disseminate knowledge to stakeholders who include K-12 students, higher education students, individuals, businesses, industry, government, non-governmental organizations and families and communities throughout Alaska and the circumpolar north and the nation. CES brings the university to Alaskans while bringing community concerns and issues back to the university.

## **STRATEGIC PLANNING PROCESS**

State-defined planned programs address in more specific and concrete terms the different aspects of our mission to allow the concentration of resources (money and people) that will promote high-quality work. Planned programs will be used to provide guidance for faculty and administrators to direct new and current programs and find or retain faculty expertise. The identification of planned programs also represents a decision about topics that will not be emphasized. This POW provides assumptions that justify the adoption of each planned program and provides knowledge areas, specific long- and short-term goals, and measurements to access success in meeting these goals.

State-defined planned programs include Agriculture and Horticulture, Natural Resources and Community Development, Sustainable Individuals, Families, and Communities, Youth Development, and Climate Change and Management of Ecosystems. The plan reflects ideas and advice given by AFES and CES client user groups, students, the State Advisory Council, panels of expert advisors representing clientele, state and national peers and cooperators, and UAF administration. The partnership with CES will strengthen the outreach component of AFES to meet the many needs for knowledge about Alaska and circumpolar resources and geography as opportunities for expansion present themselves. Federally mandated planned programs include Sustainable Energy, Global Food Security, Food Safety and Childhood Obesity. The Climate Change program will address ecosystem management in Alaska including tundra, boreal and coastal rainforest ecosystems.

The Agriculture and Horticulture and Global Food Security programs contain Integrated Pest Management (IPM) activities. AFES incorporates IPM in agricultural research projects. CES is taking the lead in crafting Alaska's response to invasive weeds, noxious plants and pest management before they become the problems they are in the 49 other states. This planned program seeks closer ties between extension programming with research, education and outreach activities in the High Latitude Agriculture Department in SNRAS/AFES. Food Safety contains research and outreach elements where collaboration will assist in food product development. A multi-disciplinary approach will highlight Alaska local-grown, high quality food products. Youth Development is changing with the complexion of the state in terms of participation and interests. Focus group sessions for the Natural Resources and Community Development

program area resulted in a community-driven problem-solving design based on themes. Community development is a critical need for rural Alaska and is dependent upon the development of natural resources abundant in rural areas.

This Plan of Work will help strengthen the working relationship between SNRAS/AFES and CES. Strong and growing relationships between SNRAS/AFES and CES are essential to the success of both units. We share goals and missions in our commitment to excellence in research, education, extension, and outreach. With finite resources, we will achieve more by working together.

## **PLANNED PROGRAMS**

### Agriculture and Horticulture

Growers in the agricultural non-food sector produce greenhouse flowers and ornamentals, and a variety of "niche market" crops and products as well as engage in landscape horticulture; animal enterprises include for example, horses, llamas and pets. As Alaska expands its in-state consumption and export markets, our producers will require increasing access to research-derived information specific for our northern latitude environment as well as adoption of knowledge derived from research in other states. Cost of energy and consumption of petroleum products is a growing concern. Energy crops are important in Alaska and will now be addressed in the Sustainable Energy Planned Program. Agriculture and horticulture outreach includes the areas of animal agriculture, agro-forestry and companion animals. CES has operated a collaborative, statewide IPM education program since 1981, helping individuals understand invasive pests and control options. Commercial horticulture includes ornamentals, greenhouse operations, turf management, lawn maintenance and sod production. Proper knowledge and planning of soil-disturbing activities can prevent major impacts on other resources. AFES operates a soil laboratory in Alaska and is a major source of information about Alaska soils.

### Sustainable Individuals, Families, and Communities

CES' Sustainable Individuals, Families and Communities Program include exercise and fitness, healthy lifestyle choices, nutrition, and diet and nutrition issues. In the area of human development, activities include lifespan development, transitions, grief and loss, and caregiver training. Consumer resource management includes areas such as estate planning, budgeting, transitions, financial management, time management, and stress reduction. Home and energy extension programming addresses indoor air quality, home maintenance and repair, building science and energy use and conservation. Emergency preparedness impacts such areas as families and communities responding to natural and man-made disasters.

### Natural Resources and Community Development

Communities will increasingly depend on Alaska's natural resources for viable economic development. Policies to sustain this growth that mirrors sociological and technological change will be critical. Major Alaska resource development activities are now centered in the oil and gas industries. Headquarters for these industries are located in the urban centers where there is access to multi-modal transportation and advanced communication systems. However, urban communities lack infrastructure to engage in value-added activities that would enhance development of non-petroleum industry. Most rural communities are off the road/rail system and communication is still somewhat limited. Some rural communities lack basic amenities such as adequate sanitation and efficient energy sources that would attract resource developers. Research is needed that will afford both urban and rural communities the opportunity to diversify their economies. Additionally, these efforts should provide underserved populations in rural areas real options for economic development and improved quality of life. Outreach addresses stakeholders' need for unbiased, science-based information about natural resource management issues in forestry, mining, water and community development.

### Youth Development

This program promotes positive youth development through education with a focus on leadership skills, using 4-H Mission Mandates: Science, Engineering, and Technology; Healthy Lifestyles; and Citizenship. Organized 4-H clubs, school enrichment programs, after-school activities, and summer camps will achieve youth development goals. The goal of Alaska's 4-H program is to support the maturation of youth from childhood to adulthood. Training throughout the state, using the Essential Elements of Youth Development, will be the foundation of all youth development programming.

### Global Food Security

Currently, Alaska imports a high percentage (at least 90%) of foods and other agricultural products consumed in the state. Growers in the agricultural sector produce products primarily for in-state consumption and use including fresh market potatoes and vegetables, forages, grains, and other livestock feeds, greenhouse vegetables, and a variety of "niche market" crops and products. Animal enterprises include dairy, beef, swine, reindeer, and alternative game animals such as muskox, elk, and bison. Agriculture research and outreach address areas of animal agriculture, home animal production, agronomic crops including cereal grains and forages, and home and commercial vegetable production. Agricultural soils, fertilizer and compost research and outreach are also part of this program area. CES has operated a collaborative, statewide IPM education program since 1981 assisting individuals to understand invasive pests and control options.

### Food Safety

The food safety area encompasses food preservation, safety, preparation, and product development. Food safety utilizes various resources and strategies to ensure that all types of foods are properly stored, prepared and preserved so that food is safe for consumption. Food safety programming education involves safety and preparation and preservation, including Alaska indigenous foods.

### Childhood Obesity

Increases in obesity have occurred rapidly. Changes in weight that have occurred over the past 15 years will have lasting impacts on the health of individuals and of the health-care system for decades to come. CES addresses the challenge with a program that focuses on making healthy food choices and increasing physical activity. Training is conducted with youth, teachers, 4-H leaders, youth group organizers, parents and community partners to provide techniques for working directly with youth in the area of obesity. The outreach focuses on risk and protective factors influencing health of youth and adults. To provide youth and adults with the technology to produce healthy foods for healthy eating, SNRAS/AFES will prepare students for careers in agriculture and related fields such as economics, horticulture, marketing and nutrition with awareness of the conditions and demands required for sustainable high latitude food production. It will provide academic training in community based food production and nutrition by building upon existing UAF degree programs in natural resources management and sustainability. A new course will be developed which will prepare students to work directly with families with young children in home, subsistence harvest and local food production settings.

### Climate Change and Ecosystem Management

Alaskans live in an environment that is unlike any other in the United States with unique features such as permafrost, the boreal forest, and continuous summer daylight alternating with sustained winter darkness. Alaska's resources must be properly managed and cared for so its people can survive socially and economically in this harsh environment, and for the long-term health of its living systems. The soils,

forests, tundra, grasslands, and animals of Alaska have long been valued by its people, who have either lived close to these resources for many generations, and now face the need to adapt to a changing environment. Alaska's resources offer many opportunities, but also many natural limitations that must be known and respected if they are to be developed and used successfully, and in a way that can be sustained over the long term. This planned program will play a pivotal role in teaching and providing information about management of Alaska and northern ecosystems. Knowledge of permafrost soils will be essential to maintain existing ground transportation corridors, plan for new corridors, and to determine appropriate building technologies as the climate changes and permafrost laden soils become more discontinuous. Management of the boreal and southeast Alaska forests will play an increasing role in fire disturbance and adaptation to climate change. Their understory and tree species will be instrumental in providing market products developed from botanicals. Alaska's forests will have an important role in Alaska's energy future. They will also play a role in ensuring that there are continuing recreation and subsistence food gathering opportunities. Geographical Information Systems (GIS) assist natural resource managers, and increasingly a broad array of stakeholders, who need to understand the concepts and practice of creating, analyzing, and displaying spatially referenced natural resource and human community data.

Sustainable Energy

Alaska's forest and agricultural resource potential for bioenergy production is immense. The economic potential of Alaska's forests is under-realized in timber and non-timber products. The potential for Alaska to develop new agricultural land is also under-realized. Furthermore, agricultural lands that are currently in the Conservation Reserve Program (CRP) may lend themselves to sustainable production of bioenergy. The forest ecosystem and agricultural lands can play a role in diversifying the economy of Alaska.

State leaders plan to develop both renewable and non-renewable natural resources to contribute to the economic well-being of their citizens without compromising ecological integrity and biodiversity. To be sustainable, any development activities require production practices that balance technologies and economic necessity with environmental imperatives. Concern for the health and survival of resource biodiversity will continue to be a central issue in resources management in Alaska and elsewhere.

AFES and CES play a pivotal role in research, teaching and outreach, providing information about management of Alaska and northern ecosystems and the production of sustainable energy resources. As energy continues to become a growing concern throughout the world, the boreal forest has the potential to provide products for the production of fuel alternatives to petroleum and coal. Agricultural research in biomass production includes non-food crops and lignocellulosic crops.

AFES researchers have established research considering the feasibility of using agricultural products for energy production in Alaska. Oilseeds, canola in particular, have been identified as a viable Alaska-grown crop. Perennial grasses and woody cellulosic plants for fiber to be used in renewable energy are being established.

Economic development efforts continue in regard to biofuels and biomass research through testing and characterizing liquid and gas hydrocarbons derived from Alaska woods. The goal is to offset high energy costs, especially for rural communities.

**Estimated Number of Professional FTEs/SYs total in the State.**

Year	Extension		Research	
	1862	1890	1862	1890
2012	35.0	0.0	30.6	0.0

**Estimated Number of Professional FTEs/SYs total in the State.**

Year	Extension		Research	
	1862	1890	1862	1890
2013	35.0	0.0	31.0	0.0
2014	35.0	0.0	31.0	0.0
2015	35.0	0.0	32.0	0.0
2016	35.0	0.0	32.0	0.0

**II. Merit Review Process**

**1. The Merit Review Process that will be Employed during the 5-Year POW Cycle**

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

**2. Brief Explanation**

The School of Natural Resources and Agricultural Sciences and the Agricultural and Forestry Experiment Station uses its established scientific peer review process to review and evaluate proposals, publications, and specific annual reports that could include the annual narratives that are required to report activities related to the POW. Extension uses the merit review process and will use a general review process for this joint POW.

The Agricultural and Forestry Experiment Station 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 that could include annual progress of work accomplished under this POW. All new and revised Hatch (and McIntire-Stennis) project proposals within the Agricultural and Forestry Experiment Station undergo scientific peer review. At present we are using the process established by NSF and NRI. Previously we had used the Hatch and McIntire-Stennis Administrative Manual's Appendix F "Essentials of a Project Proposal", which is less stringent. All proposals are submitted to the Director of the Agricultural and Forestry Experiment Station. The blind peer review panel is composed of a minimum of three members who are appointed by the Director. The panel consists of competent authorities in the discipline of the proposal/publication/annual report or related disciplines and includes at least one authority in a supporting discipline. 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 Director for transmittal to the author(s). The author(s) review all comments and recommendations of the reviewers and make adjustments or explanations in the document. The Director reviews all comments and recommendations from the reviewers along with the revised proposal/publication/report. The signature of the Director on form AD 416 submitted to

CSREES, USDA, will indicate approval of the project by the Director and will certify that the proposal has been recommended for approval by a majority of the members of the Peer Review Panel. Scientific peer review of multi-state research projects are carried out for individual projects under the aegis of the Multistate Review Committee (MRC). The specific review process can be found in the Section I.G. "Summary of the Western Review Process" in the Supplementary Manual of Procedures for Western Regional Research. This can be found on-line at <http://www.colostate.edu/Orgs/WAAESD/>. All faculty in SNRAS/AFES who are participants in Hatch multi-state projects are required to have an approved Hatch General project that is related to the field of study of the Hatch multi-state project in which they are a member.

Peer review of the CES components of the POW will consist of internal and external reviews. Internal review of the CES components of the POW will be achieved by a panel of University of Alaska Fairbanks faculty and administrators. External reviews of the POW will be by CES's State Advisory Council. At least one peer land grant institution in the Western Region will be recruited to review the Extension components of the POW. The different review panels will be charged with assessing how well the activities and resources proposed in the plan will contribute to achieving the proposed goals. Collective feedback from the peer reviews will be incorporated into future iterations of the Extension components of the POW. Extension developed metrics in 2010 for the accreditation of the university by the Northwest Accreditation Commission. The ongoing accreditation process will cover Extension's research, teaching and outreach process.

### **III. Evaluation of Multis & Joint Activities**

#### **1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?**

SNRAS/AFES and Extension carry out the land-grant mission for the University of Alaska. The school and experiment station have a statewide mission and operate major facilities in Fairbanks and Palmer, have three major research sites in Delta, Nome and Bonanza Creek along with research projects throughout Alaska. CES operates nine district offices around the state along with several affiliated offices. Planned programs were developed based on needs expressed by stakeholder groups.

SNRAS/AFES is funded by state general funds that include appropriations, indirect cost recovery and tuition, federal land grant program dollars, and competitive research grants and income from sales and leases. The school is organized into four departments: Forest Sciences, Geography, High Latitude Agriculture, and Humans and the Environment. Research is carried out in response to identified needs for fundamental and practical knowledge. Some indications of the demand for SNRAS/AFES research are: 1) topics consistently found in calls for research proposals, 2) research considered especially important in the natural resources field by society at large, and 3) research problems identified by many different funding sources as important over the long term. Some of the sponsors and partners of SNRAS and AFES research that define research priorities are the stakeholders, Alaska Legislature, the U.S. Dept of Agriculture (especially the Agricultural Research Service, Economic Research Service, Forest Service, and National Institute of Food and Agriculture), Alaska resource industries, National Science Foundation, Alaska Dept of Natural Resources, Bureau of Land Management, U.S. Geological Survey, National Park Service, U.S. Biological Survey, EPA, and Dept of Energy. SNRAS/AFES developed a new strategic plan in 2010 (in final draft format presently) with emphasis areas in sustainable agriculture, energy, climate change, and community and workforce development that incorporate its work in ecosystem management, high latitude agriculture, high latitude soils, geographic information, and resource allocation.

Extension outreach programming is conducted in response to identified stakeholder needs and interests. On a statewide level, the CES State Advisory Council is an important mechanism for gathering stakeholder input. Faculty and staff also routinely conduct formal and informal stakeholder needs assessments within their local communities to determine appropriate program priorities. The strategic plans of the University of Alaska Fairbanks and the University of Alaska that were developed with extensive public input provide guidance for CES. In addition, USDA/CSREES (now NIFA) provided a review of CES, SNRAS/AFES, and the land-grant operations of UAF. Those recommendations were adopted by the University Board of Regents in total, resulting in a more autonomous CES placement in the Office of the Provost giving it more connections with a wide variety of academic programs and higher visibility for outreach and engagement operations. While developing a new five-year strategic plan in 2010, Extension surveyed stakeholders who attended its classes, advertised and conducted an online survey and commissioned a statewide random telephone poll. These needs assessments provided direction for Extension programs through 2015. Other important organizational stakeholders that influence CES programming include, but are not limited to the Alaska Legislature, Dept of Natural Resources (Alaska), Dept of Commerce, Community & Economic Development (Alaska), Dept of Health and Social Services (Alaska), U.S. Dept of Agriculture, National Institute of Food and Agriculture, U.S. Forest Service, Rural Development, U.S. Dept of the Interior, Bureau of Land Management, U.S. Fish and Wildlife Service, and U.S. Dept of Energy.

## **2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?**

The multistate project (W-1112) Reproductive Performance in Domestic Ruminants assists reindeer and muskox producers, which represent primarily Alaska Native enterprises, and offers economic opportunity for native herders. Examples include bull management effects on time of breeding which is expected to improve reproductive success in native-owned reindeer herds. Hatch project ALK 08-02 "Alaska Natural Resources and Economic Sustainability" and other new projects will investigate the application of input-output methodologies for ongoing impact assessment. Models will include subsistence production, regional economic models particularly involving fisheries enterprises. The multistate project (W-1192) "Rangeland Sustainability and Rural Communities, is examining animal overgrazing. Other multistate participation includes: NE1035: Commercial Greenhouse Production; NECC1011: Balancing Natural Resource Recreation Management, Human Well-Being and Community Resilience; and NC103: Characterizing Active Soil Organic Matter Pools Controlling Soil N Availability; NE1037: Wood Utilization Research: Biofuels, Bioproducts, Hybrid Biomaterials Composites Production, and Traditional Forest Products; WERA1004: Agricultural and Community Development in the American Pacific; WERA1008: Rangelands West Partnership; and W106: Multistate Research Coordination, Western Region to facilitate the coordination and planning for regional research.

JOINT ACTIVITIES The Reindeer Research Program partnering with Kawerak Reindeer Herders Association are providing herders the opportunity to enter the commercial high quality meat market. Researchers developed a high quality feed which is producing excellent quality reindeer meat. A mobile slaughterhouse purchased by funds from a joint grant between SNRAS/AFES and the UAF Northwest Campus in Nome as a research, education, and outreach facility is a big step in providing USDA certified reindeer meat for marketing. AFES is working with the University of Hawaii community college system's culinary program and has a marketing study in partnership with Alaska Homegrown, a retailer in Fairbanks.

Indigenous people make up a large proportion of Alaska's population. Despite

urbanization, many Alaska Natives live in isolated rural villages with small populations and often inaccessible by surface transportation. A whole or partial subsistence lifestyle is practiced by many Alaska Natives as well as many rural residents. CES has extensive resources it provides related to safe food preparation and preservation that supplement traditional methods. For example, Extension was asked to provide processing times for walrus. A predominant focus of the CES Natural Resource and Community Development program will be on rural and urban community development, often with an emphasis on Alaska Native communities. CES has a tradition of working with underserved populations. One Extension Community Development faculty member works closely with the villages on the upper Yukon River, providing Extension information on horticulture and positive youth development and increases village leadership capacity to work with federal and state agencies. The Alaska 4-H Program is working with the communities of Minto and Eagle to provide mentoring and positive youth development programs. The Federally Recognized Tribes Extension Program, (FRTEP) serves over 40 Interior Alaska Native villages, and CES hopes to expand the program to include the Dillingham and Southeast (Juneau) areas. CES has a successful Expanded Food and Nutrition Education Program (EFNEP) and it is Alaska's Supplemental Nutrition Assistance Program- Education (SNAP-Ed) provider. In cooperation with the College of Rural and Community Development, CES is part of the NIFA-sponsored Higher Education Project for Alaska Native / Native Hawaiian Serving Institutions.

All CES agents strive to work with underserved populations, but agents in Nome and Bethel, particularly, serve a large Native constituency. CES and the City of Bethel have a 15-year partnership to run a Bethel youth center with youth programming. Many agents offer programs in rural Alaska, in the areas of youth programming, agriculture and horticulture, home energy, food preservation and community development. The CES State Advisory Council is represented by an Alaska Native and Western and Southwest Alaska have seats on the council. In FY11/12, CES will open a district office in Barrow, Alaska, the largest mostly Native community not served by Extension. This district office will be USDA's only presence north of the Arctic Circle and on the Arctic Ocean. Also in Bethel, CES works with SNRAS/AFES researchers to investigate the performance of several potato varieties that could be produced by growers in and around Bethel for local consumption or perhaps exported as certified seed. The SNRAS/AFES has similar programs in a variety of villages in western Alaska. Horticulture short courses are being offered in Dillingham and can be offered around Alaska. In areas where there are CES agents, the work is collaborative.

### **3. How will the planned programs describe the expected outcomes and impacts?**

Within each planned program we have listed individual research projects that will represent our Hatch general and multistate portfolio. The planned programs will then list outcomes we expect to accomplish over the next five-year period in those specific projects. We will document yearly progress in our annual report of accomplishments. We would expect some projects to have immediate impacts while other may take three to five years to reach a documented impact.

CES is committed to greater program accountability, particularly measuring outcomes and impacts. CES' past experience has focused on measuring outputs (number of workshops offered, number of workshop participants, number of publications distributed, etc.) versus measuring outcomes and impacts. The NIFA plan of work requirement to increase measurement of outcomes and impacts has provided the impetus to move CES to strengthen its program evaluation. It will be an evolutionary process where faculty gain experience and comfort with outcome and impact assessment as well as including planning for evaluation during the program planning phase. CES provides ongoing training through the university's Institute for Social and Economic Research (ISER), as well as NIFA training and individual mentoring for faculty in measuring impacts in communities as a result of outputs. In addition,

CES will employ an evaluation specialist to train and work with faculty on outcome and programming impacts.

**4. How will the planned programs result in improved program effectiveness and/or**

The University of Alaska Fairbanks in general and SNRAS/AFES in particular have a limited number of faculty and limited funds to meet the diverse research and educational needs in Alaska. In order to improve efficiency in meeting these needs a strategic plan (currently in final draft version) identified high priority natural resource-related problems, based primarily on stakeholder input. We use these priorities combined with current faculty expertise, available physical facilities, and funding opportunities to develop planned programs in five emphasis areas. The areas of concentration are sustainable agriculture, energy, climate change, and community and workforce development. We are committed to:

- Improving efficiency of resource management in Alaska through improved transfer of critical information to resource users and the public.
- Hiring only new faculty who specifically have expertise to meet the educational and research goals in the strategic plan, thereby increasing capabilities to meet these goals.
- Enhancing distance delivery capabilities.
- Continuing to seek ways to enhance stakeholder input to help identify priority research and education areas, especially as needs shift.
- Enhancing research partnerships with public agencies and private entities.

The POW process that stresses outcomes and impacts is leading CES faculty to devote more effort to planning for program evaluation and conducting additional and more thorough post-program assessments. With reliable and valid program assessment information, CES will be better able to determine program effectiveness social benefit, and cost effectiveness of programs, critical information for future resource allocation decisions. The NIFA POW requirement to generate outcome and impact oriented objectives with related accountability expectations has led CES faculty to focus its resources on fewer high priority issues.

CES faculty were charged with developing the logic models for each of the CES-focused POW planned programs. Faculty ownership of the planned programs and responsibility for achieving the planned outcomes and impacts goes beyond reporting outputs. CES administration will provide faculty with guidance and support to assist them in their efforts to become better program planners and evaluators to ensure that programming responds to organizational priorities and that programs offered are assessed in relation to expected outcomes and impacts.

**IV. Stakeholder Input**

**1. Actions taken to seek stakeholder input that encourages 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 (SNRAS Website, Newsletter & Blog)

**Brief explanation.**

Standard operations procedures from published literature will be used. The techniques used will depend on the appropriateness of the data needed and the type of research or outreach project involved. AFES has traditionally met with regional audiences around the state in both formal and informal settings each year. Examples of these audiences include:

- Regional and Statewide Farm Bureau
- Alaska Community Agriculture Association
- Delta Farm Forum
- Alaska greenhouse growers
- Kawerak Reindeer Herders Association
- Alaska Northern Forest Cooperative
- Alaska Diversified Livestock Association
- Alaska Peony Growers Association
- Economic development associations/corporations in Fairbanks, Juneau and Anchorage
- Soil and water conservation districts
- Borough and city governments
- Alaska Native village and regional corporations and tribal organizations
- On-Demand meetings at the request of stakeholders

These traditional meetings will continue to be focal points for listening to and receiving input from stakeholders. As required by the AREERA of 1998 and in cooperation with CES, these will be advertised as broadly as possible and identified as points of contact for public input into research and outreach program development.

CES sponsors agricultural and horticultural conferences and outreach activities with SNRAS/AFES participation where the units share mechanisms to gather formal and informal stakeholder input. CES also relies on advisory groups as an important stakeholder needs assessment process. CES has a Statewide Advisory Council and faculty in districts across the state use local advisory boards to provide them with community input related to local programming. The CES State Advisory Council meets face-to-face twice each year and holds audio conferences on a bimonthly basis. CES faculty also conduct formal needs assessments within their district as a part of program planning and development.

**2(A). A brief statement of the process that will be 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.**

SNRAS/AFES relies on stakeholder input from agricultural advisory groups, collaborators, federal and state agencies, colleagues, faculty and students for assistance in

establishing priorities and developing program direction for SNRAS/AFES in consultation with appropriate constituencies. Major stakeholders include the Fairbanks North Star Borough, Matanuska-Susitna Borough, Alaska Northern Forest Cooperative, USDA/NRCS, USDA/ARS, U.S. Forest Service, Fairbanks Economic Development Corporation, Soil and Water Conservation Subdistricts and industries involved in food, fiber, and fuel/energy production.

Members from the public who have participated in or who have an interest in CES program offerings represent one segment of the organization's stakeholders. Another significant stakeholder group is public and private agencies and organizations that have professional and programmatic relationships with CES or direct interest in CES programming. Some of CES's major stakeholder organizations include but are not limited to the Alaska State Legislature, Farm Bureau, Grange, Greenhouse Growers, Food Banks of Alaska, Department of Natural Resources (Alaska), U.S. Forest Service and Alaska Boys and Girls Clubs.

The nine members of the CES State Advisory Council are appointed by the Vice-Provost of Outreach/Director of Cooperative Extension Service based upon recommendations provided by the council. The council selects candidates from individuals who apply for membership based upon a call for applications advertised to the public and from recommendations from CES employees in all regions.

**2(B). A brief statement of the process that will be 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 with invited selected individuals from the general public

**Brief explanation.**

Survey information will be collected using formal survey preparation and analysis techniques. Meetings and workshops are scheduled around themes and to gather specific information. The information generated is collected in meeting minutes and transcripts and is used in strategic planning of research and extension programs. The objective is to generate a feedback loop that provides information to research and outreach programs and from research and outreach programs to stakeholders and individuals.

**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.**

The SNRAS/AFES joint research and outreach planned programs are directly related to the SNRAS/AFES Strategic Plan produced by the faculty of SNRAS and AFES. The plan reflects ideas and advice given by SNRAS and AFES client user groups, students, expert advisors, state and national peers and cooperators, and UAF administration. During the 2008 reporting period, the four focus areas of energy, climate change, local and regional food production and food safety, and the need for adult and youth education and training to fill Alaskan job and career demands began to emerge. These focuses will be used to set priorities in meeting the many needs for knowledge about Alaska and circumpolar resources and geography. Input will be considered in the budget process. Capacity funds will be used in response to research needs based on emerging focus areas.

A new strategic plan for CES was completed in 2010 and incorporated suggestions from stakeholders. Needs assessments help CES faculty identify emerging issues. Individual work plans are generated by faculty using this information and the strategic plan. Based upon information generated by the needs assessments, future programming needs related to hiring have been affected. Stakeholder needs will continue to be a driving factor in determining CES priorities for programming.

## V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Agriculture and Horticulture
2	Natural Resources and Community Development
3	Sustainable Individuals, Families and Communities
4	Youth Development
5	Climate Change and Ecosystem Management
6	Global Food Security and Hunger
7	Sustainable Energy
8	Childhood Obesity
9	Food Safety