2011 University of Alaska Combined Research and Extension Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

INTRODUCTION

The University of Alaska Fairbanks' School of Natural Resources and Agricultural Sciences (SNRAS), Agricultural and Forestry Experiment Station (AFES), and Cooperative Extension Service (CES) are dedicated to providing research, education and outreach relevant to the sustainable development and use of Alaska's natural resources; developing new economic opportunities; and improving the quality of life in Alaska and the circumpolar north. SNRAS, AFES, and CES carry out the land-grant mission for the University of Alaska Fairbanks.

The land-grant system is a partnership between the federal government and the states through matching funds to universities that agree to maintain programs of research, instruction, and outreach in planned programs of agriculture, natural resources, and sustaining individuals, families and communities with activities relevant to that state, the nation, and the world. A special characteristic of land-grant programs is their commitment to develop and apply research-based knowledge important in the real world for the successful long-term management of natural resources to meet both human needs and values.

The School and Experiment Station (SNRAS/AFES) operate major facilities in Fairbanks and Palmer, research sites at Delta Junction, Nome, and Bonanza Creek and manage research projects located throughout Alaska. SNRAS/AFES is organized into four departments: Forest Sciences, Geography, High Latitude Agriculture, and Resources Management.

CES is housed in the Office of the Provost at the Fairbanks campus and operates programs in Agriculture/Horticulture, Natural Resources and Community Development, Health, Home and Family Development, and 4-H and Youth Development in eight districts around the state.

AFES and CES are funded by federal capacity funds. All units receive state matching funds, as well as other state appropriations, state and federal grant funds, and private funding. SNRAS/AFES is estimating professional SYs on total capacity funds received that includes Hatch, Hatch Multistate and McIntire-Stennis funding sources. CES estimates FTEs on Smith-Lever 3, B and C funding. Although linkage between the units is not administratively mandated at the University of Alaska Fairbanks, they are linked by federal legislation, joint funding, and this joint Plan of Work.

Alaska is recognized for its immense size and sparse population and its cultural, geographic and environmental diversity. Alaska 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 and fiber 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. Thus, the use and management of these resources is a predominant force in the planning and delivery of any teaching, research and outreach programs. The finite nature of the state's non-renewable resources and local and national controversies surrounding resource extraction and related environmental concerns affect the activities of SNRAS/AFES and CES. The University of Alaska Fairbanks in general and SNRAS/AFES and CES in particular, must meet the challenges to fulfill ever increasing demands for research, education and outreach relevant to sustainable management of the development and use of Alaska's resources.

Alaska faces many choices and challenges in the use and development of its resources. In the last 40 years, Alaska's economy became dependent upon revenues related to petroleum development. To diversify its economy, the state must begin looking toward non-petroleum natural resources for economic opportunities that are cost-effective, sustainable, and beneficial to Alaska. Facing these challenges and taking advantage of opportunities to properly manage resources for the long term requires the application of special in-depth knowledge. The programs of SNRAS/AFES and CES give Alaska's resource owners and users essential components of this knowledge. CES plays a vital role in linking the knowledge generated by SNRAS/AFES, the University of Alaska Fairbanks, the University of Alaska and other information sources to meet the needs and interests of Alaskans while providing citizens a way to influence future research and education priorities. CES will be a critical partner for the university as a whole in providing a two-way 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 and vegetables; forages, grains, and manufactured livestock feeds; controlled environment products including bedding plants, florals, landscape ornamentals, short season vegetables and a variety of "niche market" crops. Livestock enterprises include dairy, beef, swine, reindeer, and alternative game animals 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 Alaska population grows, more food will need to be produced locally and regionally.

MISSION STATEMENTS

The mission of SNRAS/AFES is to "assist and train natural resource managers who make and implement decisions to develop, sustain, or protect natural systems to meet human needs and values."

The mission of CES is "to interpret and extend relevant research-based knowledge in an understandable and usable form; to encourage the application of this knowledge to solve the problems and meet the challenges that face the people of Alaska; and to bring the concerns of the community back 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, respect for cultural and ethnic diversity, and being responsive to emerging stakeholder needs and interests.

LINKAGES

There are strong linkages between CES and SNRAS/AFES to support 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 institutions. They collectively and individually generate and disseminate knowledge to stakeholders who include higher education students, individuals, businesses, industry, government, non-governmental organizations and communities throughout Alaska and the circumpolar north and the nation. CES brings the university to Alaskans and community concerns back to the university.

MERIT REVIEW PROCESS

The SNRAS/AFES uses an established scientific peer review process to review and evaluate narratives that are required to report activities related to the POW. CES uses the merit review process and will use a general review process for this joint POW.

EVALUATION OF MULTISTATE AND JOINT ACTIVITIES

When state and national research priorities match the SNRAS/AFES programmatic focus and capabilities, our research programs direct their attention to these topics and seek support or partnerships. Outreach and extension programming carried out by CES are conducted in response to identified stakeholder needs and interests.

STAKEHOLDER INPUT

CES sponsors many agricultural and horticultural conferences and outreach activities with SNRAS/AFES 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 that use local advisory committees to provide them with community input related to local program stakeholder needs and interests. SNRAS/AFES relies on stakeholder input from agricultural and forestry advisory groups, collaborators, federal and state agency partners, research colleagues, and students who assist in establishing priorities and developing program direction in consultation with appropriate constituencies.

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 (formerly called 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, both as opportunities for expansion present themselves. Federally mandated planned programs include Climate Change, Energy Sustainability, Global Food Security, Food Safety and

Childhood Obesity and Nutrition.

The Agriculture and Horticulture and Global Food Security programs contain the Integrated Pest Management (IPM) activities which were separated out in the 2008 POW High Latitude Agriculture. 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 48 contiguous states of the United 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. The Climate Change program will address ecosystem management in Alaska including tundra, boreal and coastal rainforest ecosystems.

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 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 operate 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 includes indoor air quality, home maintenance and repair, building science and energy use and conservation. Emergency preparedness includes areas such as families and communities responding to natural and man made disasters.

Climate Change

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 in order for its people to survive socially and economically, 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, or who 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 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. A 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. Geographical Information Systems (GIS) assists 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.

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. These 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 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 that addresses food security includes the areas of animal agriculture including home animal production, research and service in agronomy includes cereal grains and forages, and home and commercial vegetable production. Agricultural soils, fertilizer and compost research and outreach is also part of this program area. CES operates a collaborative, statewide IPM education program since 1981, assisting individuals 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, and 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 problem 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 supply techniques for working directly with youth in the area of youth obesity. The outreach focuses on risk and protective factors influencing health of youth and adults.

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

Year	Extension		Research	
	1862	1890	1862	1890

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

Year	Extension		Research	
	1862	1890	1862	1890
2011	33.0	0.0	35.3	0.0
2012	33.0	0.0	35.3	0.0
2013	33.0	0.0	36.7	0.0
2014	33.0	0.0	36.7	0.0
2015	33.0	0.0	36.7	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 Regional Coordinating and Implementation Committee (RCIC). 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.

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, with research projects throughout Alaska. CES operates eight 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 appropriations, 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 Resources Management. 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.

Outreach and extension programming carried out by CES are 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, CSREES 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 with higher visibility for outreach and engagement operations. 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

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) "Changing Land Management Alternatives" means changing the allocation of economic resources regionally and locally, and the alteration of the social and cultural importance of public lands to local communities and villages. The redirection of resources away from traditional uses has been most controversial. The question of direct and indirect economic impacts to the citizens of rural communities in public land states is of great concern. 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 Research is examining plant propagation and the nutraceutical properties of blueberries and

other berries as joint activities between AFES, CES, the UAF Chemistry department and Scientific Neurology Research Program (SNRP) and a private industry partner, the Alaska Berry Growers. Extension efforts are providing consumers with information on home berry processing. Quality reindeer meat production research involves rural reindeer herders in Nome, Alaska who seek to enter the commercial high quality meat market. Researchers developed a high quality feed which is producing excellent quality reindeer meat. A grant for a mobile slaughter facility through Kawerak Native Association is the next step in providing USDA certified reindeer meat for marketing. AFES will be working with the University of Hawaii on quality meat, while CES is working with researchers to create a DVD on field dressing and processing reindeer meat.

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. The Federally Recognized Tribes Extension Program, (FRTEP) serves over 40 Native villages. CES has a tradition of working with underserved populations. It has a successful Expanded Food and Nutrition Education Program (EFNEP) and it has successfully competed to be Alaska' 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.

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 gains 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), NIFA training and individual mentoring for faculty in measuring impacts in communities as a result of outputs.

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

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. Thus, in order to improve efficiency in meeting these needs we recently developed a strategic plan which identified high priority natural resource related problems, based primarily on stakeholder input. We used these priorities combined with current faculty expertise, available physical facilities, and expected funding opportunities to develop planned programs in five emphasis areas. Within these five emphasis areas, the strategic plan commits SNRAS/AFES to:

•Improve efficiency of resource management in Alaska through improved transfer of critical information to resource users and the public.

•Hire 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.

•Enhance distance delivery capabilities.

•Continue to seek ways to enhance stakeholder input to help identify priority research and education areas, especially as needs shift.

•Enhance 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 Produce Growers
- Delta Farm Forum
- Alaska Greenhouse Growers
- Reindeer Herders Association
- Alaska Northern Forest Cooperative
- Alaska Diversified Livestock Association
- Association of Peony Growers
- Fairbanks Community Sustainable Agriculture (CSA)
- Berry Growers Association
- 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 jointly 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 monthly 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, 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, Reindeer Herders Association, Greenhouse Growers, Food Banks of Alaska, Department of Natural Resources (Alaska), U.S. Forest Service, Alaska Boys and Girls Clubs, and Future Farmers of America.

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
- Meeting with 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 that was produced by the faculty of SNRAS and AFES. The Plan reflects ideas and advice given by SNRAS and AFES client user groups, students, the board of advisors, 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 the four emerging focus areas.

A new strategic plan for CES will be completed in 2010 and will incorporate suggestions from stakeholders. Needs assessments help CES faculty identify emerging issues in the five planned programs, generating plans based on logic models. The faculty use this information to generate their individual work plans. 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

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Agriculture and Horticulture

2. Brief summary about Planned Program

To address the federal mandates, we have moved the food-related research and extension components of the Agriculture and Horticulture Planned Program to the new Global Food Security Planned Program. Agriculture and Horticulture now includes non-food/non-feed research and extension activity. Information about high latitude agriculture and horticulture is increasingly being sought by urban Alaskans, those in traditional farming areas, rural communities, and new businesses primarily in horticulture and landscaping. These are also areas of close collaboration between the Agricultural and Forestry Experiment Station and the Cooperative Extension Service and complement the planned program area of Global Food Security. Areas of emphasis are agronomic practices of crops for bioenergy production, landscape and turf materials, and controlled environment/extended season and field horticulture including bedding plants and floral crops. The concentration of research and outreach is in best management practices for the production of these non-food items during the short arctic and subarctic growing season and resilience and adaptation to potential impacts of climate change. Agriculture and horticulture outreach includes the areas of companion animal agriculture, agronomy, agroforestry, and horticulture. Service within animal agriculture includes horses and sled dogs. Agronomy includes bioenergy crops and Conservation Reserve Program (CRP) land management. Agro-forestry includes Christmas tree production, and other non-food products produced via forest or wood lot management. Horticulture is divided into commercial and consumer horticulture. Commercial horticulture includes commercial floriculture production for sale off-farm, nursery production of woody and herbaceous ornamentals, greenhouse production of bedding plants, hanging baskets, and potted plants, landscape installation and maintenance services, golf course, sports field and runway turf management, and commercial lawn maintenance. Consumer horticulture includes home and community landscaping and lawn maintenance by the homeowner. Another important focus in outreach is pest management for community forestry, home and commercial horticulture, invasive plants, greenhouse production, structural pests, agriculture and the green industry such as turf, tree, and ornamental plant producers. Integrated pest management (IPM) is the primary approach, in collaboration with other agencies, to assist its stakeholders when providing pest management information and educational outreach. The IPM team works closely with Master Gardeners and Community Tree Stewards, expanding the volume of the public provided pest management education. Collaboration includes IPM, Pesticide Safety Education Program, Western Region IPM (WRIPM), and the Western Plants Diagnostics Network (WPDN), Natural Resources Conservation Service (NRCS), USDA Farm Service Agency (FSA),Rural Development, Western Rural Development Center (WRDC),and Pacific Land Grant Association(PLGA).Both CES and AFES collaborate with the USDA/Agricultural Research Service's Alaska SubArctic Agricultural Research Unit located with AFES on the University of Alaska Fairbanks campus.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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%		10%	
205	Plant Management Systems	25%		40%	
213	Weeds Affecting Plants	15%		20%	
216	Integrated Pest Management Systems	33%		15%	
305	Animal Physiological Processes	2%		0%	
401	Structures, Facilities, and General Purpose Farm Supplies	5%		5%	
405	Drainage and Irrigation Systems and Facilities	5%		5%	
601	Economics of Agricultural Production and Farm Management	5%		5%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Alaska has minimal agricultural infrastructure and servicing capability. Biological and physical overview: Agricultural lands in Alaska include both continental and maritime zones. On average the growing season is 100 days, soils are cool, day length approximately 22 hours in some areas, and the sun angle is low. Horticultural crops: Bedding plants and landscape materials are produced in structures that extend the growing season and dominate the farm-gate value of horticultural crops. Hanging baskets and other floriculture may occupy these structures after the bedding-plant season. This horticultural produce moves to the consumer through the wholesale/retail chain. All other products go directly to retail markets that include grocery chains. Organic farming presents challenges to research and outreach. Horticulture is a high-demand workforce industry and there is currently not a trained labor force in the state. Controlled environment (CEA) research aims to increase horticulture crop production in Alaska. Agronomic crops: There is a new potential for production of non-food and feed crops, including oilseed and woody species for energy. Lands that are nearing the end of enrollment in CRP programs present a potential area for production of these crops. The horse owner market is believed to be the highest consumer of Alaska grown hays. Resilience to climate change with potential changes in season length and water supply are critical additions to new research and outreach. Landscape crops: There is a growing interest in hardy varieties that respond to low fertilizer, water, and pesticide use including native species. Sports turf is an economic opportunity with work continuing on golf greens and fairways. Sustainability of sports turf is an important consideration as energy and input costs rise. Subsistence gardens: There are anecdotal indications that home garden production, including home floral production and sales through farmers' markets are increasing. Outreach to these producers concerning best varieties to use and best-management practices are critical. Animal industry: Horses and dogs are very visible in Alaska. Appropriate outreach information from research centers outside Alaska is provided. There is a demand for veterinary practitioners/technicians throughout the state.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension

- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Changes in the status of CRP lands in Alaska will precipitate assistance to landowners in changing land use with an eye toward use of the lands for nonfood and non-feed crops including crop production that can be used for fuels. A challenge for the large number of horse owners is limited locally produced feed and high transportation costs. An increased interest in native species for both agricultural and horticultural activities will present a challenge for outreach, as growers look more toward the rest of the United States for information in these areas. Energy will be a growing concern in food, feed, and fuel production as well as agricultural inputs produced from petroleum resources. To support these new directions, education and training of youth and adults to supply a newly shaped workforce will be critical.

2. Ultimate goal(s) of this Program

Sustainable practices for agriculture and horticulture will become a bigger priority in the next five years. Small scale agriculture for home and professional growers will remain a focus area as will research in agricultural science and industry development that includes pesticide education, crop development, and farming efficiencies for individuals, families and communities. The Integrated Pest Management program will continue to be a center of excellence on information for Alaskans to mitigate invasive species, keeping pest species below economic threshold levels. AFES and CES will become prominent in information and research on alternative energy supplies and technology and energy conservation. Resilience and adaptability to climate change will be a focus in rural and urban areas as it affects Alaska's lands and forests. Finally, youth and adult continuing education will increasingly become an integrated component of both SNRAS/AFES and CES to supply an increasing demand for the labor force in Alaska as workers retire and new opportunities become available.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	3.0	0.0	1.5	0.0
2012	3.0	0.0	1.5	0.0
2013	3.0	0.0	1.5	0.0
2014	3.0	0.0	1.5	0.0
2015	3.0	0.0	1.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research and outreach will be integrated to assure that best management practices appropriate to Alaska and tailored to Alaska are provided to the target audience. There will be new directions in energy crops, 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 non-food agricultural production. An emphasis will also be placed on educating and training youth and adults in new fields opening in 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 will provide individuals and businesses with important information. Increased reliance on the internet and distance technology will enhance delivery to more people. Increasing partnerships will become important strategies in maintaining pest species below threshold levels. Outreach will

also include forums, tours, response to emails, phone calls and walk-in stakeholders.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (Consultations)	● Public Service Announcement ● Newsletters ● TV Media Programs ● Web sites ● Other 1 (Publications)

3. Description of targeted audience

Arborists, botanical garden volunteers, child care centers, farmers, garden and plant associations, public and commercial greenhouses, homeowner associations, landscapers, state and federal park employees, master 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.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	4500	50000	100	175
2012	4700	52000	100	175
2013	4900	54000	100	175
2014	5100	56000	100	175
2015	5300	58000	100	175

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**1 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	4	1	0

Year	Research Target	Extension Target	Total
2012	4	1	0
2013	4	1	0
2014	4	1	0
2015	4	1	0

V(H). State Defined Outputs

1. Output Target

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

  2011:40 **2012:**40 **2013:**40 **2014:**45 **2015:**45

- Output Target 2: Faculty will provide non-food agricultural, horticultural and pest management information through one-on-one consultations and consultations with other organizations (in contact hours).

  2011:2800 **2012:**2850 **2013:**2900 **2014:**2950 **2015:**0

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

  2011:4 **2012:**4 **2013:**4 **2014:**4 **2015:**4

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

  2011:5 **2012:**5 **2013:**5 **2014:**5 **2015:**5

- Output Target 5. Turf research will continue including variety selection and expansion into multiple use. Output measure will be publications and public and commercial adoption of technology.

  2011:1 **2012:**1 **2013:**1 **2014:**1 **2015:**1

V(I). State Defined Outcome

O. No.	Outcome Name
1	Outcome Target 1: Increase non-food agricultural and horticultural producers' ability to understand and assess optimum production practices.
2	Outcome Target 2: Increase non-food livestock producers' ability to understand and assess optimum production practices.
3	Outcome Target 3: Increase the number of activities that monitor and control invasive species.

Outcome # 1

1. Outcome Target

Outcome Target 1: Increase non-food agricultural and horticultural producers' ability to understand and assess optimum production practices.

2. Outcome Type : Change in Action Outcome Measure

2011:20	**2012:**20	**2013:**20	**2014:**20	**2015:**20

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2011:20	**2012:**20	**2013:**20	**2014:**20	**2015:**20

3. Associated Knowledge Area(s)

- 305 - Animal Physiological Processes

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Outcome Target 3: Increase the number of activities that monitor and control invasive species.

2. Outcome Type : Change in Condition Outcome Measure

2011:5	**2012:**5	**2013:**5	**2014:**5	**2015:**5

3. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

Alaska is the harbinger of climate change in the North. The region is already seeing impacts of the changing climate in its sea ice degradation, the ecology of the boreal forest, and its ice-impregnated northern soils. This will influence the thrust of agriculture in coming years. Policy and regulation and competing public priorities are already coming to the fore as endangered species affect land use and food and feed crops are increasingly used for fuels. Programmatic challenges will occur as consideration is given to the production of crops and the management of the forests for fuels to mitigate demands on petroleum and coal supplies. A continuing rise in transportation costs is already drawing attention to regional and local food production and processing. Finally, as demographics of the population change and demographics of the agricultural industry change, there will be a need for continuing adult education and higher education to fill workforce vacancies or new positions that are created to meet demands in energy, medical, and resource management fields.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

Description

The objective of the AFES and CES is to set in place a feedback loop that brings information from our units to our clientele and bring clientele input back to us to enable us to continue to adjust our work, within the capabilities of our space and budgets, to meet the needs of the people of Alaska. For example: reports to CES from greenhouses removing potentially invasive plants from sales inventory and cities/agencies/producers developing and implementing management plans for invasive species would provide data on effectiveness of education through change in behavior. We are continuing ongoing monitoring for gypsy moth and emerald ash borer.

2. Data Collection Methods

- Sampling
- Mail
- Telephone
- On-Site
- Structured
- Unstructured
- Case Study
- Observation
- Tests
- Journals

Description

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.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Natural Resources and Community Development

2. Brief summary about Planned Program

Alaska is a state with an urban core and rural periphery. Major resource development activities are located in the urban centers that have access to multi-modal transportation and advanced communication systems. These activities primarily focus on oil and gas exploration, development and export. Processing for in state use is limited to gasoline, home-heating fuel, and aviation fuels. Urban communities lack infrastructure to engage in value-added activities that would enhance development of resources not directly related to the petroleum industry. Most rural communities are off the road/rail system and communication infrastructure is still somewhat limited. Many smaller rural communities (populations under 500 citizens) may not have even the most basic amenities such as adequate sanitation and efficient energy sources that would attract appropriate resource developers. Many of these communities are in need of enhanced facilitation skills as a mechanism to translate local cultural values into the dominant cultural policy-making activities across the state. Research is needed that will provide knowledge to afford both urban and rural communities the opportunity to diversify their economies. Both research and outreach should provide under-served populations in rural areas real options for economic development and improved quality of life. Research and outreach priorities will be determined through joint collaboration with stakeholders in communities, industry, and state and federal agencies. Focus will be on identifying emerging natural resource issues in energy, climate change, food security, agriculture and horticulture, forestry, mining, water and community development for stakeholders. Research and the education and outreach growing from that research will provide Alaskans with unbiased, science-based information for both urban and rural populations to assist in understanding issues and making informed decisions. AFES and CES will continue to provide traditional programs in education and outreach, but will enhance these programs with a focus on energy, adaptation to climate change, food security, positive youth development and a sustainable quality of life for individuals, families and communities, including engaging communities with UAF by bringing ideas back to the university to assist in establishing future research and education activities.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	10%		0%	
112	Watershed Protection and Management	20%		5%	
122	Management and Control of Forest and Range Fires	10%		20%	
123	Management and Sustainability of Forest Resources	10%		20%	
131	Alternative Uses of Land	10%		5%	
134	Outdoor Recreation	5%		15%	
605	Natural Resource and Environmental Economics	15%		15%	
608	Community Resource Planning and Development	15%		10%	
610	Domestic Policy Analysis	5%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The scope of the issues addressed in the Natural Resources and Community Development planned program is larger than any one organization or school or college within UAF is capable of addressing. Therefore effectively addressing natural resources issues will depend on forming partnerships with credible, research-based organizations and other land grant institutions as well as schools and colleges within UAF. Other units within the University of Alaska Fairbanks include the School of Management, School of Fisheries and Ocean Sciences, College of Rural and Community Development, College of Engineering and Mines, the Northwest Campus, Nome, AK and Bristol Bay Campus in Dillingham, AK. Partnership interests include providing multi-resource planning and the process of determining public resource policy, resource economics and policy impact assessment, rural community culture and economic development analysis, environmental law and policy, and outdoor recreation. The SNRAS/AFES provides expertise in basic and applied research in agriculture and horticulture and ecosystem management including basic soils research. Their research is multi-disciplinary and in the social science arena includes law and policy, land and resource planning, resource economics and outdoor recreation management. As Alaska matures there will be changes in the state's demographics, economy, social structure and land use. In planning public resource policy most agencies tend to use methods of involving the public that were developed over 30 years ago; i.e. public meetings, open houses, and public hearings. This planned program will increase the level of awareness of new public involvement techniques as well as their advantages and disadvantages. Alaska federal land management policies are set by national priorities which at times conflict with Alaskan interests on state owned lands. Additionally, 44 million acres of Alaska's lands are lands owned by Alaska Native Regional and Village Corporations and use of the resources on them is controlled by the corporations. Less than 1% of Alaska's total land mass is in private ownership. The CES Natural Resources and Community Development planned program will provide information for stakeholders on issues related to forest and land resources, mineral and non-petroleum energy, water resources and rural communities; provide skill training in topics such as agriculture, horticulture, alternative energy, water quality monitoring, management of local water resources, identification of rocks and minerals of economic importance, use of global positioning systems and geographic information systems to locate, inventory, and monitor important resources, reviewing economic analysis information to assist in planning and managing natural resources, evaluating economic options for rural communities, and use of natural resource micro-business opportunities for rural and urban communities.

2. Scope of the Program

- In-State Research
- Multistate Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

2. Ultimate goal(s) of this Program

- Develop regional economic models for Alaska resource development impact on communities.
- Develop and examine public involvement processes that meet public expectations.
- Determine the effectiveness of natural resource and environmental laws.
- Create and develop long term partnerships both in and outside Alaska. Assist stakeholders in making informed decisions regarding utilization of valued natural resources.
- Increase number of Alaska youth receiving basic natural resource skill training for early entry into natural resource management jobs and assist youth in choosing careers managing Alaska's natural resources.
- Facilitate product development to include timber, non-timber products, and forest management for fuel production.
- Assist stakeholders in realizing the connection between recreation and human well being
- Establish CES as a clearinghouse of unbiased, research-based, consumer friendly information in the areas of climate change, food security, agriculture and horticulture, alternate energy and energy conservation, water quality, mineral resources, GIS, economic analysis, small business start-ups, and options for facilitation training for rural communities based on community interest with an emphasis on transferring Alaskan developed information.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	4.0	0.0	6.2	0.0
2012	4.0	0.0	6.2	0.0
2013	4.0	0.0	6.2	0.0
2014	4.0	0.0	6.2	0.0
2015	4.0	0.0	6.2	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research products will provide science-based information in resource planning, economic and environmental impact of natural resource use, market and non-market value of resources, and conflict resolution in rural communities and villages along with basic information in climate change issues, food security, agriculture and horticulture, forest sciences, and soil sciences for use by planners, economists, and policy makers. Measurable outcomes will include peer reviewed publications, lay publications, rural community business/development plans, and citizen participation. Extension activities involve partners from other UAF units as well as AFES to assure that there is a feedback loop that will continue to make the information provided to stakeholders relevant to their needs. These activities will develop integrated and/or multistate projects concerning natural resources stewardship within the University of Alaska Fairbanks and with other land grant institutions; develop criteria to broadly define the temporal natural resource interests of stakeholders so the program's activities address the needs of those Alaskans most directly impacted by specific natural resource matters; develop partnerships with government agencies to identify and address stakeholder needs; regularly assess stakeholder needs and emerging natural resources issues impacting stakeholders; conduct literature reviews and review contemporary research relevant to this program; develop culturally and educationally relevant CES publications (including fact sheets, bulletins, and newsletters) that provide

unbiased, scientific information about natural resource issues; develop, review, and revise a web site to be the electronic portal for UAF CES information on natural resources stewardship matters of concern to stakeholders; develop, plan, deliver, evaluate and revise as needed extension workshops, demonstrations and basic skill trainings; facilitate discussions and other meetings that address stakeholder needs in or near their communities; develop, conduct and review 4-H and FFA projects related to the natural resource stewardship program; develop, plan, conduct, evaluate and revise as needed young adult stakeholder workforce readiness trainings that prepare youth for entry-level positions in natural resource management positions; develop, deliver, facilitate and evaluate natural resource stewardship informational discussions with urban populations to increase their awareness of natural resource issues and the values and needs of stakeholders relative to natural resources; coordinate and assist the UAF School of Natural Resources and Agricultural Sciences and other units of the University of Alaska in recruiting and graduating young Alaskans with endorsements, certificates and degrees that result in careers in managing, using and protecting natural resources.

Product development activities includes:

- Providing standards for Alaska woods.
- Developing non-timber forest products with business entrepreneurs.
- Investigating the fuel potential of Alaska's forests.
- Investigating recreation opportunities and impacts in Alaska's forest ecosystems.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class	● Newsletters
● Workshop	● Web sites
● Group Discussion	● Other 1 (Publications)
● One-on-One Intervention	
● Demonstrations	
● Other 1 (Youth and natural resource camps)	
● Other 2 (Consulting)	

3. Description of targeted audience

This program will focus on industry and entrepreneurs including communities, families, and newly forming cooperatives and businesses, non-profit and for-profit development corporations. Efforts will be made to address problems of the traditionally under-served rural populations within the limit of resources available. Stakeholders are those directly impacted by contemporary natural resource issues related to forest and land resources, mining resources, and water resources, young adults wanting entry level skills needed for employment in natural resource related businesses, agencies or organizations, and persons in natural resource related occupations who wish to increase their skill and/or knowledge level, Federal and state agencies.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	700	5000	450	1200
2012	750	6000	475	1250
2013	800	7000	500	1300

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2014	850	8000	525	1300
2015	900	9000	550	1300

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	8	1	9
2012	9	1	10
2013	11	1	12
2014	11	1	12
2015	11	1	12

V(H). State Defined Outputs

1. Output Target

- Output Target 1: Active partnerships with other land grant institutions, government agencies, stakeholder groups and organizations.

  2011:10 **2012:**10 **2013:**10 **2014:**10 **2015:**10

- Output Target 2: Develop and deliver public issues education workshops and classes for stakeholders on locally relevant natural resources and related issues.

  2011:30 **2012:**35 **2013:**35 **2014:**35 **2015:**40

- Output Target 3: Develop and maintain a web-based platform for discourse and information sharing on relevant areas of interest in natural resource issues that connect people to information.

  2011:1 **2012:**1 **2013:**1 **2014:**1 **2015:**1

- Output Target 4: Conduct needs assessments of natural resource management stakeholders.

  2011:2 **2012:**2 **2013:**2 **2014:**2 **2015:**2

- Output Target 5. Regional economic models Alaska resource management scenarios. Output will be electronic and written publications.

  2011:3 **2012:**3 **2013:**4 **2014:**4 **2015:**4

- Output Target 6. Develop and implement public involvement in natural resource issues. Output measure will be public input sessions and publications.

  2011:3 **2012:**3 **2013:**4 **2014:**4 **2015:**4

- Output Target 7. Provide analyses of natural resource and environmental laws. Output measure will be publications.

  2011:2 **2012:**3 **2013:**3 **2014:**3 **2015:**3

V(I). State Defined Outcome

O. No.	Outcome Name
1	Outcome Target 1: Increase and maintain partnerships with stakeholder groups, government agencies, and other institutions that will enhance the land grant mission.
2	Outcome Target 2: Increase the number of integrated and multi-state research-extension activities.
3	Outcome Target 3: Increase the recruitment and retention of youth appreciating and considering natural resource management careers.
4	Outcome Target 4. Increase public involvement in natural resource and community development issues. Outcome measure will be the increase in number of communities.

Outcome # 1

1. Outcome Target

Outcome Target 1: Increase and maintain partnerships with stakeholder groups, government agencies, and other institutions that will enhance the land grant mission.

2. Outcome Type : Change in Action Outcome Measure

2011:6	**2012:**7	**2013:**7	**2014:**7	**2015:**7

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 122 - Management and Control of Forest and Range Fires
- 123 - Management and Sustainability of Forest Resources
- 134 - Outdoor Recreation
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 610 - Domestic Policy Analysis

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Outcome Target 2: Increase the number of integrated and multi-state research-extension activities.

2. Outcome Type : Change in Action Outcome Measure

2011:2	**2012:**3	**2013:**3	**2014:**4	**2015:**5

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 610 - Domestic Policy Analysis

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Outcome Target 3: Increase the recruitment and retention of youth appreciating and considering natural resource management careers.

2. Outcome Type : Change in Action Outcome Measure

2011:35	**2012:**35	**2013:**35	**2014:**35	**2015:**35

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 134 - Outdoor Recreation
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Outcome Target 4. Increase public involvement in natural resource and community development issues. Outcome measure will be the increase in number of communities.

2. Outcome Type : Change in Action Outcome Measure

2011:3	**2012:**4	**2013:**4	**2014:**4	**2015:**4

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 610 - Domestic Policy Analysis

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

Changes in state and federal policy and regulation will affect appropriations to the university and the economy of the state of Alaska. Current energy dialogue in the state centers on oil and gas despite discussions of alternate energy. Should a successful proposal for a gas line be announced, this will inject jobs and dollars into Alaska and most likely change priorities from an increasing focus on using alternative forms of energy that are regionally produced to, once again, export of a raw product. Within the programs of AFES and CES, this would most likely mean refocusing on this change in public priorities at some detriment to the programs proposed here.

However, Alaska is the harbinger of climate change in the North and this will continue to influence the thrust of the Natural Resource and Community Development program in coming years. Policy and regulation and competing public priorities are already coming to the fore as endangered species affect land use and hence resource use for community development. Despite the potential affect of external factors, there will be a need for continuing adult education and higher education to fill workforce vacancies or new positions that are created to meet demands in energy and community development, and a continuing need for processes that improve the quality of life and economic well-being of communities.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

Description

The objective of the AFES and CES is to set in place a feedback loop that brings information from our units to our clientele and bring clientele input back to us to enable us to continue to adjust our work, within the capabilities of our space and budgets, to meet the needs of the people of Alaska.

2. Data Collection Methods

- Sampling
- Mail
- Telephone
- On-Site
- Structured
- Unstructured
- Case Study
- Observation
- Tests

Description

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.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Sustainable Individuals, Families and Communities

2. Brief summary about Planned Program

The Sustainable Individuals, Families and Communities Program includes the following five outreach emphases areas:1) Health, nutrition and foods education and research involves food preservation, food safety, food preparation, food product development, Alaska indigenous foods, exercise and fitness, healthy lifestyle choices, nutrition, and diet and nutrition issues.2) Human development activities focus on lifespan development, transitions, grief and loss, and caregiver training. 3)Consumer resource management includes estate planning, budgeting, transitions, financial management, time management and stress reduction. 4) Emergency preparedness includes areas such as families and communities responding to natural and man-made disasters. 5) Homes and energy provides education on indoor air quality, home maintenance and repair, building science and energy use. This last area is experiencing a rapid growth in interest and resource allocation.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
502	New and Improved Food Products	5%		0%	
504	Home and Commercial Food Service	20%		0%	
703	Nutrition Education and Behavior	15%		0%	
724	Healthy Lifestyle	20%		0%	
801	Individual and Family Resource Management	10%		0%	
802	Human Development and Family Well-Being	15%		0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	10%		0%	
805	Community Institutions, Health, and Social Services	5%		0%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

One of Alaska's major challenges, given its large geographic area and limited infrastructure, is the rapid growth of the incidence of obesity and associated chronic health-related problems. Along with education on better choices in diet, exercise and care, Alaska has an abundance of nutritious seasonal, wild and homegrown foods that require proper development and preservation methods. New food products will be developed using Alaska produced ingredients. Working with individual youth on financial literacy and nutrition leads to training families on relationships, parenting, marriage/divorce, communication, child

and elder care, military deployment, health and retirement. Community participation in research is necessary for helping people cope with stress and changing demands on Alaskans. Community participation in research is necessary for helping people cope with stress and changing demands on Alaskans. Cost of living and energy issues, property taxes and rural unemployment place burdens on sustainability at many levels. Families in rural areas of Alaska tend to be larger and younger, with lower incomes than urban counterparts. Population shifts, especially out-migration from villages, impact the changing demographics across the state. Indoor air quality becomes an issue with a higher impact on the lower income earners, as more time is spent inside during the long winter. Natural disasters are exacerbated by the isolation of many Alaskan communities as well.

Cost of living and energy issues, property taxes and rural unemployment place burdens on sustainability at many levels. Families in rural areas of Alaska tend to be larger and younger, with lower incomes than urban counterparts. Population shifts, especially out-migration from villages, impact the changing demographics across the state. Indoor air quality becomes an issue with a higher impact on the lower income earners, as more time is spent inside during the long winter. Natural disasters are exacerbated by the isolation of many Alaskan communities as well.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Alaskans' health can be improved through healthier lifestyle choices in food, exercise and self or family care. With the variety, quantity, season and location of indigenous food sources, adequate information on preservation is essential in maximizing the value and shelf life of nutrition sources. Developing and improving Alaskan food products is critical in supporting sustainable communities, especially as the demand for information increases.

Human development content areas are taught via distance modalities due to the expense of traveling to hundreds of small communities; however, the application of interpersonal skills is still critical to program success. With transportation, food and energy costs becoming prohibitive, especially in rural regions, families require consumer resource management education to avoid bankruptcy and related legal and social issues. These costs will continue to rise. Energy conservation of built stock inventories of buildings requires investment in weatherization, improved construction techniques, and good science for healthy, efficient, and durable housing and commerce. Renewable energy will become a major topic of interest and concern that will drive future outreach education.

2. Ultimate goal(s) of this Program

Education will improve citizens' lives in making healthier lifestyle choices, strengthen sense of family through individual action, and improve community. With a better understanding of economic and financial issues, citizens have what they need to participate successfully in a complex, global environment, regardless of how rural the setting. Programming will increase access to and sustainability of healthy, affordable housing through renewable energy and conservation. Emergency preparedness will help communities become self-reliant as disaster strikes, allowing for a stronger infrastructure for better response and shorter recovery.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	6.5	0.0	0.0	0.0
2012	6.5	0.0	0.0	0.0
2013	6.5	0.0	0.0	0.0
2014	6.5	0.0	0.0	0.0
2015	6.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Field faculty will conduct workshops and meetings, deliver educational services, provide training, and conduct consultations with clientele. Researchers will develop products, curricula and resources, provide training and conduct consultations with clientele.

Educators and researchers will conduct needs assessments, work with the media, partner with other agencies and organizations, write articles, publications and fact sheets, and facilitate events, activities, and teachable moments.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (Distance Delivery) ● Other 2 (Phone and email)	● Public Service Announcement ● Newsletters ● TV Media Programs ● Web sites ● Other 1 (Publications)

3. Description of targeted audience

The Sustainable Individuals, Families and Communities programming involves parents, care givers of children,school children (public and private), school teachers (public and private), home and building owners, individuals interested in healthy lifestyles, individuals and families needing assistance managing their finances, low- income individuals and families, especially women with young children, individuals interested in a subsistence lifestyle, individuals interested in food preservation, individuals and professionals interested in emergency preparedness, and human development and social work professionals.

Institutional cooperation will include food banks, housing and energy authorities and organizations, and individuals or families experiencing life transitions.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	6750	53400	700	600
2012	7000	53900	725	620
2013	7250	54400	750	640
2014	7500	54500	775	660
2015	7500	54500	800	680

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	0	1	1
2012	0	1	1
2013	0	1	1
2014	0	1	1
2015	0	1	1

V(H). State Defined Outputs

1. Output Target

- Output Target 1: Extension faculty will offer workshops in a wide range of home economics and family and consumer science topics.
  2011:140 **2012:**145 **2013:**150 **2014:**150 **2015:**0

- Output Target 2: Extension district offices will updated emergency planning for internal operations and constituent communities.
  2011:8 **2012:**8 **2013:**8 **2014:**8 **2015:**0

- Output Target 3: Home energy extension workshops and conferences will provide individuals and families with immediate and long-term actions they can implement for energy conservation.
  2011:30 **2012:**35 **2013:**40 **2014:**40 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	Outcome Target 1: Participants in healthy lifestyle classes and workshops will adopt knowledge gained to maintain healthy lifestyle practices one year after participation.
2	Outcome Target 2: Participants will use knowledge gained in parent education classes to increase their application of developmentally appropriate practices.
3	Outcome Target 3: Awareness gained in workshops and will result in active energy conservation efforts by 20% each year over 2007 levels.
4	Outcome Target 4: Energy efficiency awareness will result in an increase in collaborations for energy conservation by 25% per year over five years.

Outcome # 1

1. Outcome Target

Outcome Target 1: Participants in healthy lifestyle classes and workshops will adopt knowledge gained to maintain healthy lifestyle practices one year after participation.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
310	310	310	310	0

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Outcome Target 2: Participants will use knowledge gained in parent education classes to increase their application of developmentally appropriate practices.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
80	80	80	80	0

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Outcome Target 3: Awareness gained in workshops and will result in active energy conservation efforts by 20% each year over 2007 levels.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
600	750	900	900	0

3. Associated Knowledge Area(s)

- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Outcome Target 4: Energy efficiency awareness will result in an increase in collaborations for energy conservation by 25% per year over five years.

2. Outcome Type : Change in Action Outcome Measure

2011:8	**2012:**10	**2013:**12	**2014:**14	**2015:**0

3. Associated Knowledge Area(s)

- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Seven agents in district offices must cover a large geographic area and many agents who travel beyond their district offices must travel by air. Though agents have been very successful in partnering with other governmental and private entities to make each travel dollar go farther, they are still are unable to travel as often as requested. A large push towards energy efficiency and related funding from state and federal resources could bring more resources to bear on the energy extension programming. Appropriation changes, policy and regulation and competing public priorities affect program creation and delivery.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Comparison between locales where the program operates and sites without program intervention

Description

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.

2. Data Collection Methods

- Sampling
- Mail
- Telephone
- On-Site
- Structured
- Observation

Description

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.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Youth Development

2. Brief summary about Planned Program

Extension will promote youth development through *education* with a focus on skills and knowledge targeting individual learners with the goals of developing competency in various knowledge skills and a *content* approach using the 4-H follow Mission Mandates: Science, Engineering, and Technology; Healthy Lifestyles; and Citizenship. Clubs, school enrichment programs, after-school activities, and summer camps will be conducted across Alaska to achieve youth development goals.Training throughout the state, using the Essential Elements of Youth Development, will be the foundation of all youth development programming within this contextual framework that include generosity, belonging, independence, and mastery.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
607	Consumer Economics	5%		0%	
801	Individual and Family Resource Management	5%		0%	
806	Youth Development	90%		0%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Of the nearly 100,000 youth who could benefit from positive youth development programming, currently only 10% of that target population of youth are served by the program (Kids Count Alaska 2004 Data Book, ISER, UAA). Increased administrative function support for 4-H will result in a stronger client find for underserved and minority population activities. The university system strongly supports workforce development, with attention to youth, as a priority in outreach. Alaska is facing increased urbanization and rural outmigration. The graying and browning of the American population is also occurring in Alaska. Military deployment continues to be a major source of stress on a significant percentage of families. The number of youth who participate in 4-H programming drops off in adolescence. The number of agent/field faculty is small in contrast to the distances between communities. Transportation off the limited road system requires expensive air or limited sea access. Such geographic extremes, combined with a high latitude climate, restrict what programs can be offered. Without an equivalent to county agents, we will continue to develop partnerships with Native corporations, non-profit agencies, and local, regional and state organizations involved in youth programming to strengthen ownership in programming.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

When environments include sustained opportunities for youth to gain a sense of belonging, independence, mastery and generosity, youth make positive life choices. Their contribution in leadership and civic engagement productively influence their communities and their futures. Positive youth development relies on science-based program competencies that promote workforce development and personal goal attainment through long-term, caring interactions with mentors, peer support, and experiential learning. Improvements in risk management and volunteer management for volunteer leaders will continue to enhance these youth assets. Increasing membership or involvement in programs has to incorporate new types of club and program activities that meet the relevant needs of single-head of household families, various learning styles, and a wide range of socio-economic strata in the state's diverse populations.

2. Ultimate goal(s) of this Program

Borrowing from the vision of 4-H, Alaskan youth will be productive citizens and catalysts for positive change to meet the needs of a diverse and changing society. 4-H youth development will be a highly respected resource recognized by the state as a leader in creating a sense of belonging, mastery, independence and generosity through club and project programming to any community with a desire to build youth assets.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	8.5	0.0	0.0	0.0
2012	8.5	0.0	0.0	0.0
2013	8.5	0.0	0.0	0.0
2014	8.5	0.0	0.0	0.0
2015	8.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

With the use of a 4-H Volunteer Leaders Training Manual, CD's and accompanying web-based tutorials that incorporate Essential Elements training , various methods of delivery will be developed including district workshops, the development of digital learning platforms, teleconference trainings, highlights for newsletters and web-based tutorials. In addition to redefining the Alaska State 4-H Leaders Training Manual, portions of 4-H 101 will also be added to the training.

Many youth enter the workforce without the key skills needed to succeed in the workplace. By creating collaborations with local district schools, area businesses, federal, state and tribal agencies and other civic organizations, training programs will be made available for youth and opportunities for employment can be achieved.

Ideals of entrepreneurship will be presented at the 4-H club level by conducting trainings with local volunteer leaders, junior. leaders, and youth of the 4-H clubs. District agents will assist in promoting the ideals of youth-based enterprises through additional leader and junior leader trainings, providing entrepreneurial opportunities, and collaboration with organizations that can aid such opportunities.

Collaborations with local schools and other youth programs across the state will lead to new volunteer opportunities for 11-18 year olds. Though there are many opportunities for youth of this age, a key to success in this program will be though developing collaborations with local schools, other youth programs, and area University of Alaska campuses.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (Camps)	● Public Service Announcement ● Newsletters ● Web sites

3. Description of targeted audience

Grades k&ndash12

Parents of school-age children

Adults interested in positive youth development

4-H Extension educators

Other Extension educators

4-H Adult volunteers

Military youth educators

Community leaders

Federal and state agency representatives

Native corporations and tribal representatives

Youth-serving organizations, including FFA

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	600	2400	1200	17000
2012	650	2500	1250	17500
2013	700	2600	1300	18000
2014	700	2600	1300	18000

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2015	700	2600	1300	18000

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0

V(H). State Defined Outputs

1. Output Target

- Output Target 1: 4-H educators will train volunteer organizational leaders in the Essential Elements of Youth Development

  2011:1 **2012:**1 **2013:**1 **2014:**1 **2015:**0

- Output Target 2: Extension will offer relevant workforce skill development projects for youth 15-18.

  2011:3 **2012:**3 **2013:**3 **2014:**3 **2015:**0

- Output Target 3: 4-H will offer opportunities for membership or involvement for underserved and minority youth.

  2011:5 **2012:**5 **2013:**5 **2014:**5 **2015:**0

- Output Target 4: Youth Development will offer initiative programming in science, engineering and technology.

  2011:5 **2012:**5 **2013:**5 **2014:**5 **2015:**0

- Output Target 5: 4-H educators will offer inter and intra-district educational and service collaborations.

  2011:5 **2012:**5 **2013:**5 **2014:**5 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	Outcome Target 1: 100% of faculty and staff associated within the program area will understand the Essential Elements of Youth Development
2	Outcome Target 2: After receiving training in the Essential Elements of Youth Development, volunteer leaders and youth will apply at least two of the Essential Elements in their interactions during programming.
3	Outcome Target 3: 4-H educators will expand programming to underserved and minority youth by 5% in each year of the five-year plan of work.

Outcome # 1

1. Outcome Target

Outcome Target 1: 100% of faculty and staff associated within the program area will understand the Essential Elements of Youth Development

2. Outcome Type : Change in Knowledge Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
9	9	9	9	0

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Outcome Target 2: After receiving training in the Essential Elements of Youth Development, volunteer leaders and youth will apply at least two of the Essential Elements in their interactions during programming.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
200	200	200	200	0

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Outcome Target 3: 4-H educators will expand programming to underserved and minority youth by 5% in each year of the five-year plan of work.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
5	5	5	5	0

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)
- Other (Outreach activities)

Description

Youth Development programming will build on existing community assets for youth to promote educational opportunities as part of a network of resources in communities as those communities see the value of the resource.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Description

Systematic collection of data on participation and impacts will focus on formative and summative evaluation tools to study behavior changes that lead to long-term productive impacts on individual development.

2. Data Collection Methods

- Sampling
- Mail
- Telephone
- On-Site
- Structured
- Observation
- Tests

Description

Evaluation tools will be developed as part of youth programming.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

The Arctic and Subarctic zones are expected to sustain the greatest impact in the wake of global climate change. AFES and CES will play a pivotal role in research, teaching, and outreach to provide information about management and adaptation to climate change in Alaska and northern ecosystems. Management of the boreal forest and southeast Alaska's temperate rainforests will play an increasing role in fire disturbance and adaptation to climate change. Fire management strategies, permafrost degradation and the slow rate of boreal forest growth will need to be taken into account. As energy continues to become a growing concern throughout the world, the boreal forest has the potential to provide products for the production of fuels alternative to petroleum and coal. The Forest Inventory Analysis (FIA) for Alaska is incomplete and no USFS inventories include biomass capacity. The economic potential of Alaska's forests is under-realized in timber and non-timber products. The forest ecosystem can play a role in diversifying the economy of Alaska. Very little information exists regarding the characteristics of soils associated with Alaska's forests and there is a great need for a soils information baseline for modeling climate change, boreal forest management, temperate rain forest management and environmental soil inventory. Soils are a fundamental resource, and knowledge about the cold-climate soils of Alaska is crucial for most Alaska resource management, production, and construction activities. Proper knowledge and planning of soil disturbing activities can prevent major impacts on other resources. Under current Alaska climate variability, cold soils are experiencing significant changes that are in turn causing changes in natural and managed ecosystems. Proper knowledge and planning of soil-disturbing activities can prevent major impacts on other resources. Natural resource managers, and increasingly stakeholders, need to understand the concepts and practice of creating, analyzing, and displaying spatially referenced natural resource and human community data. Nearly all maps and most data about natural resources are now stored, shared, and analyzed as digital spatial files. A critical missing component to data mapping of Alaska's forests and agricultural lands is a ground-based data connection to modeling efforts. Signatures of forest and soil types have yet to be established to allow remote data collection technology to provide accurate information of existing ground cover that ranges from the northern rain forest in southeast Alaska, to the boreal forest of Interior Alaska, to the tundra of Northern Alaska. A critical component of any planned program for Alaska will provide this essential link of ground to remote sensed data.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	0%		10%	
122	Management and Control of Forest and Range Fires	0%		20%	
123	Management and Sustainability of Forest Resources	0%		50%	
132	Weather and Climate	0%		10%	
605	Natural Resource and Environmental Economics	100%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The Arctic and Subarctic zones are expected to sustain the greatest impact in the wake of global climate change. Global climate change may result in warmer and dryer conditions in boreal forest and coastal forest regions. The large expanse of public land in Alaska will require skilled and knowledgeable management of natural landscapes into the indefinite future. We will maintain a leadership role in examining the sensitivity of northern resources to climate variability and change and will contribute to integrated assessments of the effects of climate change to Alaska's ecosystems. In this role ground data base information will continue to be amassed and used as the basis to persuade remote sensing specialists of the need to establish indicator links for ground to remote sensed information. State leaders will be targeted as they plan to develop both renewable and nonrenewable natural resources to contribute to the economic well being of its citizens without compromising ecological integrity and biodiversity. To be sustainable, any development activities require knowledge of desirable 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. Geographic information and a link to ground data is critical to the management of vast natural resource areas. Professionals who will be future land managers will need to be conversant in technology and methodology to obtain both land and remotely sensed information. An excellent training base for these future managers is curricula that incorporate visual learning through electronic media. In view of the vast acreage in Alaska and the potentially high carbon storage capacity in the boreal forest and the potentially high release of carbon into the atmosphere as arctic soils warm, it is critical that there be an understanding of the balance of the boreal forest and tundra soils if ecological modeling is to enhance the capabilities of land managers.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The condition and productivity of Alaska's forest and wild land resources is strongly influenced by climate, which is highly variable in Alaska. Interest in climate change will remain strong and national assessments of climate and resources will be a national and international priority. We assume that in Alaska's and the circumpolar

north's future knowledge of ecosystem resources, a data base and data management system will be critical to allow us to:

- Evaluate and manage disturbance
- Recommend sustainable best management practices for recovery
- Develop ground based signatures correlated to remotely sensed images
- Incorporate ground-based signatures into climate models
- Enhance product production and use
- Encourage sustainable economic development.

The teams we have and will assemble include scientists in key program knowledge areas in forest and ecosystem sciences, forest products, range management, recreation, and policy and law, and community development. Funding sources are becoming more available through competitive grants and community, state and federal support. Outreach and education are a part of AFES's and Extension's mission to assist clients in sustainable use of natural resources and ecosystem management. Geographic information is critical to the management of vast natural resource areas. Increasingly, geographic information is derived from and transmitted using remote images. Without a reference to ground-based data, indices to relate ground-data to information obtained remotely, and a data management system that allows universal and user-friendly accessibility, remote information is useless. Professionals who will be future land managers will need to be conversant in technology and methodology to obtain both land and remotely sensed information. SNRAS/AFES will maintain programs in soil science, GIS, and ecosystem modeling that will be supported by these assumptions and will follow a number of basic assumptions:

- Global climate will not remain constant and current models predict increases that will impact northern latitudes first and hardest.
- Warming climates will increase incidence and magnitude of forest fires, diseases and insect infestations in the boreal forest of interior Alaska.
- Resource extraction of petroleum and minerals will continue and without proper management will impact Alaska's soil resources in a negative way.
- Forest management will increasingly include multiple forest products including timber, non-timber products, and fuels for energy production. Integration of this work will deliver information to managers and users of natural resources and will in turn bring information back for further program development.

2. Ultimate goal(s) of this Program

The goal of this program is the management of ecosystems to produce, conserve, and enhance harvestable products and biodiversity in Alaska and the north and to improve understanding of the effects of natural resource policies and regulations on the management of Alaska's ecosystems. This includes:

- Sustaining bio-diversity in undeveloped areas
- Long-term monitoring programs
- Data management systems to support sustainable ecosystems and communities
- Sustainable community growth
- Development of a diversity of forest products
- Development of ground-based data with indices that correlate to remotely sensed data
- Use of the indices in models that reflect the impacts of climate change
- To attain these goals it will be necessary to develop a knowledge base that will address interactions between global warming, wild land fire, forest diseases and insect infestation, soil properties and characteristics in a forest ecosystem regime, soil carbon bioavailability, forest product development, non-extractive forest uses, and community development. Work will focus on:
- Soil properties of northern forests
- Origin, formation, and classification of high-latitude soils.
- Soil responses to climate change
- Long-term forest productivity data conversion and incorporation into mega data systems for compatibility with long term ecological research, fire management, forest health, and forest ecosystem data sets.
- Development of curricula that train future land managers in ecosystem stability and geospatial technology.
- Climate change effects on northern forest ecosystems.
- Federal, state, and community government policy and regulation concerning ecosystem management.
- Development of a ground-based data set incorporating soils and forest types with specifics related to remotely sensed

data.

• Development of a ground-based data set in soils and crop types specific to biomass production and o remote sensed signatures.

This work combined with effective education and outreach will play a vital role in resource management and adaptation to climate change in Alaska and the circumpolar north.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	0.0	12.3	0.0
2012	0.0	0.0	12.3	0.0
2013	0.0	0.0	13.0	0.0
2014	0.0	0.0	13.0	0.0
2015	0.0	0.0	13.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

• Research and outreach strategies will include a data base and data management system necessary for:
• Forest stand characterization of the Alaska boreal and coastal rain forest.
• Long-term ecosystem monitoring and GIS modeling of the Taiga forest dynamics.
• Discovery of and complete predictive relationships between weather factors and growth of climate sensitive forest species in Alaska.
• Remote sensing to investigate landscape level responses in response to burn severity within black spruce ecosystems in Alaska.
• Land-based data sets to correlate animal distributions on the landscape with remote images.
• Explorations of evaporation process in the boreal forest hydrologic environment.
• Agricultural land characterization including soils and crop types
• Compilation of a data base on agricultural production of crops and crop residues

High latitude soil research over the next five years will center on the following research topics and activities:

• Characterization of northern forest soils in boreal regions of Alaska in terms of the organic carbon pool and relationship with forest management practices.
• Soil carbon balance and nitrogen dynamics following disturbance by wildfire and logging.
• Soil respiration following wildfire in lowland black spruce, upland black spruce and mixed hardwoods.
• Evaluation of the relationship between local climate and soil carbon balance.
• Soils characterization for agricultural crop production

Research, education and outreach activities include:

• Correlating land-based information with remotely sensed images for forestry and agriculture
• Geographic Information Systems
• Maps and spatial data sets of long-term value
• Climate change adaptation as it relates to communities

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class	● Public Service Announcement
● Workshop	● Newsletters
● Group Discussion	● TV Media Programs
● One-on-One Intervention	● Web sites
● Demonstrations	● Other 1 (Publications)

3. Description of targeted audience

The target audiences include producers and consumers, communities and small business entrepreneurs, 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. Our efforts will be directed toward environmentally and economically sustainable development and conservation of our natural resources that will benefit all citizens and help them adapt and become resilient as the climate changes. Advisors and the target audience include: Statewide Board of Advisors, Alaska Forest Association, Society of American Foresters, Alaska Farm Bureau, and the Alaska Northern Forest Cooperative. Specifically, this program will provide new information on soil properties and classification to the USDA Natural Resource Conservation Service, the USDA Forest Service, the Alaska Department of Natural Resources, borough governments, and Alaska Native Corporations. Information on impact of fires on soil organic matter will assist the Department of Natural Resources Division of Forestry and private land owners and managers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	60	1200	0	0
2012	60	1200	0	0
2013	60	1200	0	0
2014	60	1200	0	0
2015	60	1200	0	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total

Year	Research Target	Extension Target	Total
2011	13	0	0
2012	13	0	0
2013	14	0	0
2014	15	0	0
2015	15	0	0

V(H). State Defined Outputs

1. Output Target

- Output Target 1. Soils research will concentrate on the classification of permafrost soils, soil carbon properties in relation to climate change, and soil disturbance dynamics in upland and lowland forest ecosystems. Publications are output measures.

  2011:7 **2012:**8 **2013:**8 **2014:**9 **2015:**9

- Output Target 2. Long-term forest productivity data sets will be converted to formats compatible with existing megadata systems for compatibility with long term ecological research, fire management, and forest disturbance dynamics. Outputs measured will be publications and data sets converted.

  2011:6 **2012:**6 **2013:**8 **2014:**8 **2015:**8

- Output Target 3. Development of data sets providing information on wildlife and domestic (traditional and alternative) livestock impact on rangelands will continue. Output measures will be data sets developed and publications.

  2011:4 **2012:**5 **2013:**5 **2014:**5 **2015:**5

- Output target 4. Curricula that train future and present land managers in ecosystem stability and geospatial technology will be developed and implemented. Output measure will be curricula implemented.

  2011:1 **2012:**1 **2013:**2 **2014:**1 **2015:**0

- Output Target 5. Climate change will affect northern forest ecosystems that will impact economic development of communities and will have cultural implications as well on communities and individuals. Causes and effects of change on ecosystems and reverberations felt by communities and individuals will be investigated. The measured output will be publications.

  2011:5 **2012:**5 **2013:**6 **2014:**6 **2015:**6

- Output Target 6. Research related to product development to include timber products and non-timber products including energy will continue. Forest management specific to fuel/energy demand will be initiated. Measureable outputs will be publications and business starts.

  2011:5 **2012:**5 **2013:**6 **2014:**6 **2015:**6

- Output Target 7. Recreation opportunities are important in urban and rural forests and are a part of ecosystem services. Recreation management in northern ecosystems is a part of management of ecosystems research. Measurable outputs are publications.

  2011:4 **2012:**4 **2013:**4 **2014:**4 **2015:**4

V(I). State Defined Outcome

O. No.	Outcome Name
1	Outcome Target 1. Increase knowledge of arctic and subarctic soils and forest productivity among peer scientists, managers, and governments. Knowledge outcome measures will be publications, conferences, and workshops.
2	Outcome Target 2. Increase animal producer and wildlife manager knowledge on range use and animal impact. Measurable outcomes are publications, workshops, and conferences.
3	Outcome Target 3. Increase knowledge through classroom and field course delivery. The outcome measures will be curricula delivered and number of students reached.
4	Outcome Target 4. Increase community and individual knowledge on the impact of climate change in northern ecosystems and affects on cultural lifeways, economies, and individual well-being. Outcome measures will be publications, workshops, and conferences.
5	Outcome Target 5. Provide research information that leads to product development and recreational opportunities. Outcome measures will be publications, business starts, conferences, and workshops.

Outcome # 1

1. Outcome Target

Outcome Target 1. Increase knowledge of arctic and subarctic soils and forest productivity among peer scientists, managers, and governments. Knowledge outcome measures will be publications, conferences, and workshops.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:16	**2012:**17	**2013:**20	**2014:**20	**2015:**0

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Outcome Target 2. Increase animal producer and wildlife manager knowledge on range use and animal impact. Measurable outcomes are publications, workshops, and conferences.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:8	**2012:**9	**2013:**10	**2014:**10	**2015:**0

3. Associated Knowledge Area(s)

- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Research

Outcome # 3

1. Outcome Target

Outcome Target 3. Increase knowledge through classroom and field course delivery. The outcome measures will be curricula delivered and number of students reached.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:100	**2012:**110	**2013:**120	**2014:**130	**2015:**0

3. Associated Knowledge Area(s)

- 122 - Management and Control of Forest and Range Fires
- 123 - Management and Sustainability of Forest Resources
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Research

Outcome # 4

1. Outcome Target

Outcome Target 4. Increase community and individual knowledge on the impact of climate change in northern ecosystems and affects on cultural lifeways, economies, and individual well-being. Outcome measures will be publications, workshops, and conferences.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:8	**2012:**9	**2013:**10	**2014:**10	**2015:**0

3. Associated Knowledge Area(s)

- 122 - Management and Control of Forest and Range Fires
- 123 - Management and Sustainability of Forest Resources
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Outcome Target 5. Provide research information that leads to product development and recreational opportunities. Outcome measures will be publications, business starts, conferences, and workshops.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:3	**2012:**4	**2013:**4	**2014:**5	**2015:**0

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 132 - Weather and Climate

4. Associated Institute Type(s)

- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

- Populations changes (immigration, new cultural groupings, etc.)

Description

Alaska is already seeing impacts of the changing climate in its sea ice degradation, the ecology of the boreal forest, and its ice-impregnated northern soils. This will influence the thrust of ecosystem management in coming years. Policy and regulation and competing public priorities are already coming to the fore as endangered species affect land use and hence management of forests and rangelands. Programmatic challenges will occur as consideration is given to the management of the forests for fuels to mitigate demands on petroleum and coal supplies. A continuing rise in transportation costs is already drawing attention to regional and local management for energy and other local wood products. Finally, as demographics of the population change and demographics of the forest industry change toward management with a specific product objective as well as an objective of sustainable and resilient northern ecosystems, there will be a need for continuing adult education and higher education to fill workforce vacancies or new positions that are created to meet demands in energy and ecosystem management fields.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

Description

2. Data Collection Methods

- Sampling
- Mail
- Telephone
- On-Site
- Structured
- Unstructured
- Case Study
- Observation
- Tests
- Journals

Description

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.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

Despite efforts to establish an agricultural base that could provide a substantial portion of the food needed for people living in Alaska, the agricultural industry remains small and diverse. Alaskans are aware that a significant portion, 90% or more, of the food they consume is imported. The Alaska Native population is not historically agrarian but rather a hunting and gathering people. Information about high latitude agriculture and horticulture is increasingly being sought by urban and suburban Alaskans, in traditional farming areas, rural communities, and new and existing businesses. These are also areas of close collaboration between the Agricultural and Forestry Experiment Station and the Cooperative Extension Service. Issues of food security, high latitude agriculture and high latitude soils easily blend research with Extension outreach education. Global food security programming encompasses animal agriculture, agronomic crops for food and feed, controlled environment/extended season, and field horticulture. The concentration of research and outreach is in best management practices for the production of food and livestock feed in the short arctic and subarctic growing season and resilience and adaptation to potential impacts of climate change. Agriculture and horticulture outreach include animal agriculture, agronomy, and field and controlled environment horticulture. Service within animal agriculture includes production of animals for commercial sale and for home use. Agronomy includes cereal grains, forages, and Conservation Reserve Program (CRP) land management. Agro-forestry includes livestock-related forestry uses and other food products produced via forest or woodlot management. Horticulture is divided into commercial and consumer components. Commercial horticulture includes production of fruits and vegetables for sale off-farm and greenhouse vegetable production. Consumer horticulture includes home and community gardening. The Integrated Pest Management team works closely with Master Gardeners and Community and commercial vegetable and field crop growers, expanding the volume of public provided pest management education. Collaboration includes IPM, Pesticide Safety Education Program, Western Region IPM (WRIPM), and the Western Plants Diagnostics Network (WPDN), Natural Resources Conservation Service (NRCS),USDA Farm Service Agency (FSA), Rural Development, Western Rural Development Center (WRDC), and Pacific Land Grant Association (PLGA). Both CES and AFES collaborate with the USDA/Agricultural Research Service's Alaska SubArctic Agricultural Research Unit collocated with AFES on the University of Alaska Fairbanks campus.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	0%		5%	
102	Soil, Plant, Water, Nutrient Relationships	10%		9%	
205	Plant Management Systems	40%		50%	
212	Pathogens and Nematodes Affecting Plants	0%		1%	
213	Weeds Affecting Plants	5%		0%	
216	Integrated Pest Management Systems	5%		0%	
301	Reproductive Performance of Animals	0%		9%	
302	Nutrient Utilization in Animals	15%		3%	
307	Animal Management Systems	10%		15%	
308	Improved Animal Products (Before Harvest)	10%		0%	
401	Structures, Facilities, and General Purpose Farm Supplies	0%		1%	
402	Engineering Systems and Equipment	0%		1%	
405	Drainage and Irrigation Systems and Facilities	0%		2%	
502	New and Improved Food Products	0%		3%	
601	Economics of Agricultural Production and Farm Management	5%		0%	
610	Domestic Policy Analysis	0%		1%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Alaska imports more than 90% of the food it consumes, has minimal agricultural infrastructure and processing capability, and a heritage that is based in hunting and gathering, rather than agrarian pursuits. The only attempt made to estimate food imports was in the mid-1980s when economists determined that approximately 5% was produced in the state. The state invested substantial capital in developing two large agricultural projects: one for grain production to supply what they hoped would be a growing number of meat and dairy animals and another to establish dairies to increase the locally produced milk supply. Even though the state provided approximately 45% of the milk consumed and cattle and hog numbers had increased, the state still imported the vast majority of food consumed. Since that time milk and red meat production have decreased substantially with little increase in other agricultural production and processing sectors. Recent increases in transportation costs, distribution, and food at the point of production outside Alaska have made Alaskans more vulnerable to disruption in the food supply chain. More data is needed on imports to enable those involved in research, education, and outreach to better prepare Alaskans to produce, process, and prepare fresh, local foods. Agricultural lands in Alaska include both continental and maritime zones. On average the growing season is 100 days, soils are cool, day length during the growing season is approximately 22 hours in some areas, and the sun angle is low. Field vegetable crops are primarily cabbage, carrots, and lettuce. Potatoes and food-type bedding plants dominate the farm-gate value of horticultural crops and are produced in structures that extend the growing season. The state of Alaska is connected to the contiguous United States by a single highway artery, the Alaska Highway. There is no rail connection with the exception of container roll-on, roll-off barge service to Canada and Seattle, WA. The road system within the state is limited and effectively ends in Fairbanks in

Alaska's interior. The Dalton Highway, servicing the North Slope oilfields is basically a single use oil-field supply corridor although there is public access. Any disruption in any one of these transportation modes will disrupt the food supply to and within Alaska. Subsistence (hunting and gathering) is significant in rural areas and a part of the culture in native communities. However, imported foods play an important, though not necessarily healthy, role in the diet in these communities. There are anecdotal indications that home garden production, local food production in Community Sustainable Agriculture (CSAs), community garden production, and sales through farmers' markets are increasing. Outreach to these producers concerning best varieties to use and best management practices are critical. In the animal segment of agriculture industry predominant livestock are beef cattle and reindeer with research, education and outreach support in place. Other traditional animal enterprises in the road/rail belt region include hogs, goats, sheep, and poultry. Appropriate outreach information from research centers outside Alaska is provided.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Limited food and feed resources are a challenge for a large state with a small population that is concentrated in the road/rail belt and scattered in the remainder of the state among remote rural and village communities. This makes support for research, education and outreach in food security difficult. The challenges are more similar to Pacific Island communities than more traditional operations in the contiguous United States. Possible changes in the status of CRP lands in Alaska will precipitate assistance to landowners in changing land use with an eye toward use of the lands for crop production that can be used for food, feed and potentially energy crops. An increased interest in native species for food uses like wild berries, herbs, other wild land resources will present a challenge for outreach, as growers look more toward the rest of the United States for information in these areas. Regional food supply in the face of rising transportation costs and from the aspect of food safety will be important in Alaska, a state that now imports over 90% of its food supplies and processes virtually none. To support these new directions, education and training of youth and adults will be critical to supply a newly shaped workforce.

2. Ultimate goal(s) of this Program

It is critical to communicate awareness of the food security problem to the entire population of Alaska which includes individuals, families, and communities, as well as state and federal entities, non-profit organizations that provide food for their clients such as school systems, hospitals, military bases, and food banks. Challenges exist for the State of Alaska as a government that would be called upon to assist in case of a disaster and eventually for the federal government that would also be called on for assistance. It is a wide-reaching problem, the breadth and depth of which is understood by few Alaskans.

Solutions must be sought to expand of the agricultural industry in Alaska including marketing, processing and transportation for community security. Small scale agriculture for home and professional growers will remain focus areas as will research in agricultural science and industry development, which includes pesticide education, crop development, and farming efficiencies for individuals, families, businesses, communities and the industry as a whole. Efforts in the Integrated Pest Management program will benefit food security. Finally, youth and adult continuing education will increasingly become an integrated component of both AFES and CES to supply an increasing demand for the labor force in Alaska as workers retire and new opportunities become available.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	7.0	0.0	13.3	0.0
2012	7.0	0.0	13.3	0.0
2013	7.0	0.0	14.0	0.0
2014	7.0	0.0	14.0	0.0
2015	7.0	0.0	14.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research and outreach will be integrated to assure that best management practices appropriate to Alaska and tailored to Alaska are provided to the target audience. 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 food production and the safety of the foods produced and processed are critical to the food security of Alaska and will be an emphasis of these planned programs. An emphasis will also be placed on educating and training youth and adults in new fields opening in 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 will provide individuals and businesses with important information. Increased reliance on the internet and distance education technology will enhance delivery to more people but there will continue to be reliance on traditional interactions that include forums, tours, response to emails, phone calls and walk-in stakeholders. Increasing partnerships with the agribusiness community will become an important strategy for assuring a secure food supply for Alaska.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class	● Public Service Announcement
● Workshop	● Newsletters
● Group Discussion	● TV Media Programs
● One-on-One Intervention	● Web sites
● Demonstrations	● Other 1 (Media, DVDs)

3. Description of targeted audience

The target audiences include producers and consumers, communities, entrepreneurs, agribusinesses, industry leaders, and 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. Advisors and the target audience include: Statewide Board of Advisors, Alaska Farm Bureau, and Specifically, this program will provide new information on soil properties and classification to the USDA natural Resource Conservation Service, the USDA Forest Service, the Alaska Department of Natural Resources, borough governments, and Alaska Native Corporations.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	10000	15000	200	50
2012	10500	15500	200	50
2013	11000	16000	200	50
2014	11500	16500	200	50
2015	12000	17000	200	50

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	12	1	13
2012	12	1	13
2013	12	1	13
2014	12	1	13
2015	12	1	13

V(H). State Defined Outputs

1. Output Target

- Output target 1. Field faculty will provide agricultural and horticultural workshops,short courses, classes, field days, and conferences aimed at improving food production and best management practices.

  2011:200 **2012:**200 **2013:**200 **2014:**200 **2015:**200

- Output Target 2: Field faculty will provide agricultural and horticultural information through one-on-one consultations and consultations with other organizations to provide information on best management practices of food production (in contact hours).

  2011:1000 **2012:**1100 **2013:**1200 **2014:**1200 **2015:**1200

- Output Target 3. Horticultural crop research will concentrate on home and commercial varieties appropriate as Alaska food crops. Publications are the output measures.

  2011:20 **2012:**20 **2013:**20 **2014:**20 **2015:**20

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

  2011:3 **2012:**3 **2013:**3 **2014:**3 **2015:**3

- Output Target 5. Focus will be on best management practices for food crops and variety evaluation. Output measures will be publications.

  2011:6 **2012:**6 **2013:**6 **2014:**6 **2015:**6

- Output Target 6. Focus will be on best management practices for livestock management and production for food. Output measures will be publications.

  2011:3 **2012:**3 **2013:**3 **2014:**4 **2015:**4

V(I). State Defined Outcome

O. No.	Outcome Name
1	Outcome Target 1: Increase agronomic crop producers' ability to understand and assess best management practices of food crop production.
2	Outcome Target 2: Increase traditional and alternative livestock producers' ability to understand and assess optimum production practices for food animal production.
3	Outcome Target 3: Increase participants' commercial and home horticulture optimum food crop growing techniques and improve management practices.
4	Outcome Target 4: Increase the number of activities that monitor and control invasive spieces.

Outcome # 1

1. Outcome Target

Outcome Target 1: Increase agronomic crop producers' ability to understand and assess best management practices of food crop production.

2. Outcome Type : Change in Action Outcome Measure

2011:25	**2012:**25	**2013:**25	**2014:**25	**2015:**25

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants
- 405 - Drainage and Irrigation Systems and Facilities
- 502 - New and Improved Food Products

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Outcome Target 2: Increase traditional and alternative livestock producers' ability to understand and assess optimum production practices for food animal production.

2. Outcome Type : Change in Action Outcome Measure

2011:20	**2012:**20	**2013:**20	**2014:**20	**2015:**20

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 502 - New and Improved Food Products

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Outcome Target 3: Increase participants' commercial and home horticulture optimum food crop growing techniques and improve management practices.

2. Outcome Type : Change in Action Outcome Measure

2011:50	**2012:**50	**2013:**50	**2014:**50	**2015:**50

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants
- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 402 - Engineering Systems and Equipment
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Outcome Target 4: Increase the number of activities that monitor and control invasive spieces.

2. Outcome Type : Change in Condition Outcome Measure

2011:5	**2012:**5	**2013:**5	**2014:**5	**2015:**5

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

Alaska is the harbinger of climate change in the North. The region is already seeing impacts of the changing climate in its sea ice degradation, the ecology of the boreal forest, and its ice-impregnated northern soils. This will influence the thrust of agriculture in coming years. Policy and regulation and competing public priorities are already coming to the fore as endangered species affect land use and food and feed crops are increasingly used for fuels. Programmatic challenges will occur as consideration is given to the production of crops and the management of the forests for fuels to mitigate demands on petroleum and coal supplies. A continuing rise in transportation costs is already drawing attention to regional and local food production and processing. Food safety is a rising concern as well if costs for chemical disease controls increase and integrated pest management systems are not fully in place. Finally, as demographics of the population change and demographics of the agricultural industry change, there will be a need for continuing adult education and higher education to fill workforce vacancies or new positions that are created to meet demands in energy, medical, and resource management fields.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Description

The objective of the AFES and CES is to set in place a feedback loop that brings information from our units to our clientele and bring clientele input back to us to enable us to continue to adjust our work, within the capabilities of our space and budgets, to meet the needs of the people of Alaska. Reports to CES from greenhouses removing potentially invasive plants from sales inventory and cities/agencies/producers developing and implementing management plans for invasive species would provide data on effectiveness of education through change in behavior. We are continuing ongoing monitoring for gypsy moth and emerald ash borer.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- Telephone
- On-Site
- Structured
- Unstructured
- Case Study
- Observation
- Portfolio Reviews
- Tests
- Journals

Description

Standard operations procedures from published literature will be used. The techniqueds used will depend on the appropriateness of the data needed and the type of research or outreach project involved.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

On its face, 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 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 will play a pivotal role in research, teaching and outreach, providing information about management of Alaska and northern ecosystems and the production of sustainable energy sources. 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.

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	20%		20%	
125	Agroforestry	20%		20%	
131	Alternative Uses of Land	20%		20%	
205	Plant Management Systems	40%		20%	
511	New and Improved Non-Food Products and Processes	0%		20%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Alaska contains vast forested lands and lands that have forest product and agricultural production capability. The priority is economic viability without negative impacts on existing agricultural and forestry enterprises. However, a forest inventory analysis (FIA) for Alaska total is incomplete at best. Agricultural land surveys exist for most of the state, but are also not complete. Additionally, large masses of the productive forest and agricultural lands are not within reach of current transportation infrastructure and existing electrical or power supplies.

Agricultural land surveys for Alaska are published by the USDA Natural Resource Conservation Service (NRCS). It is estimated that within the road system there are 500,000 acres of cropable lands. Grain, grass, and oilseed crops are likely candidates for energy use. The USDA National Agricultural Statistics Service (NASS) provides statistics for grain and hay. There are no statistics for oilseeds or crop residues, although amounts could be estimated. Woody biomass as a crop is also a potential energy source. There have been reasonable successes with these crops in other northern areas. Research at the University of Alaska Fairbanks in AFES is progressing. Willow and poplar are the species most frequently used and are included in the research.

The Western Governors' Association in the review draft of "Biomass Electric Supply Sources for the Western States" (2005) estimated biomass resources in the Western states including Alaska. The major categories included agricultural, forest, and urban biomass resources. However, much of the information regarding crop residues, energy crops, unused logging slash, primary sawmill residues, biosolids, waste water, and landfill waste had to be estimated based on an average from selected western states, calculated on a per capita or per acre basis as applicable, then extrapolated to obtain totals.

Much more information exists but, as stated above, is scattered and not organized in a manner specifically directed to give quantifiable answers to those with an interest in using biomass as a dedicated fuel stock. Research and subsequent education and outreach are priority concerns as we move from rough estimates to actual capabilities concerning Alaska potential for sustainable energy production.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

On its face, Alaska's forest and agricultural resource potential is immense. There is a need for research on the availability, quality and feasibility of sustainable, economic use of agricultural and forestry biomass in Alaska. Communities which do not have access to the South-central Natural Gas distribution system, particularly in Northern, Northwestern, Western, Southwestern and Interior Alaska rely heavily (75%+) on high cost petroleum based fuels to satisfy their home/space heating. Most also use petroleum products or coal for their electrical generation needs. The negative aspects of this reliance are further compounded in relatively isolated rural and village communities by the high cost of transporting these expensive fuels to point of use.

It is this high end-use fuel cost that is driving many individuals and communities to seek alternative fuel sources, especially in the critical realm of home/space heating. Sustainable "biomass" energy sources are attractive because of their apparent wide distribution, abundance, proximity to affected communities, easy availability and assumed low cost (when combusted in an appropriate technology) and are being strongly considered as a means of alleviating the fuel cost dilemma.

Currently, UAF AFES in Palmer houses the bioenergy and bioproducts laboratory, with research equipment ranging from biomass gasifiers to the production of various liquid fuels from agricultural and forestry biomass.

AFES has collected and archived metereological data over a span of 96 years (the longest continuous weather record for the state) in interior Alaska. AFES has been specifically collecting wind speed and direction for over three years using a 30 m metereological tower to accurately gauge the potential for energy generation in the Matanuska Valley.

Data for solar applications was collected during 1980 &ndash 1995. It was compiled and is available for this region from the Cooperative Extension. In addition, the Experiment Station has equipment and expertise in remote sensing, and in conversion of traditional fossil fuel equipment and vehicles into electrical drives. The faculty at AFES is involved in development and delivery of upper division courses for-credit classes on biomass and bioenergy, sustainable energy resources and bio-products, with no overlap in scope of teaching or research with other MAUs at the UA system.

2. Ultimate goal(s) of this Program

AFES researchers and CES outreach professionals are seeking new answers in the ever-challenging field of energy production. Our goal is to better qualify/quantify biomass resources and addresses the question of availability, quality and feasibility of biomass so that it might be used in Alaska as an economic, sustainable fuel source by:

- determining the potential for biomass crops as feedstocks for energy uses by testing numerous plant species, both native and introduced

- compiling a forestry biomass database which will help optimize forestry bioenergy production
- determining the chemical composition of Alaska woody species as the initial step toward analyzing Alaska biomass for biorefinery applications.
- producing a liquid substance that can mesh with the existing petroleum infrastructure that will greatly enhance the transition toward a renewable energy future.
- developing by-products from a value-added biobased fuel

- becoming prominent in information and research on alternative energy supplies and technology and energy conservation.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	0.0	2.0	0.0
2012	0.0	0.0	2.0	0.0
2013	0.0	0.0	2.0	0.0
2014	0.0	0.0	2.0	0.0
2015	0.0	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

AFES researchers will concentrate primarily on yield potential of lignocellulosic crops as well as evaluate oilseed crops as bioenergy crops in Alaska. If successful, this research will lead to development of "best practices" management regimes and genetics of bioenergy crops. In the future, we intend to conduct research in remote locations in Alaska to determine the feasibility of various crops in small villages where people often have little experience in agriculture. For this purpose, we will concentrate on crops likely to be successful in these situations, especially woody crops, which will require little agricultural knowledge and simple technology.

AFES researchers are continuing to work on the utilization of low value biomass for fuels and chemicals, mostly through thermochemical means (gasification, pyrolysis, supercritical fluids). The chemical composition of alder, birch, hemlock, yellow cedar, Sitka spruce, red cedar, white spruce, and aspen will be evaluated for biofuel production via supercritical liquefaction. CES is working with communities on use of biomass products and with producers to develop value added forest products. AFES researchers will seek to assimilate all existing information on the total forest and crop biomass available in Alaska into one database, determine the gaps in the database and the information needed to fill the gaps, and determine the biological, physical, and economic feasibility of using Alaska biomass as biofuels.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Public Service Announcement ● Newsletters ● TV Media Programs

3. Description of targeted audience

The target audiences include producers and consumers, communities, agriculture and forestry businesses, industry leaders, entrepreneurs, 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. Our efforts will be directed toward environmentally and economically sustainable development and conservation of our natural resources that will benefit all citizens and help them adapt and become resilient as the climate changes. Advisors and the target audience include: Statewide Board of Advisors, Alaska Forest Association, Society of American Foresters, Alaska Farm Bureau, and the Alaska Northern Forest Cooperative. Specifically, this program will provide new information on soil properties and classification to the USDA natural Resource Conservation Service, the USDA Forest Service, the Alaska Department of Natural Resources, borough governments, and Alaska Native Corporations. Information on impact of fires on soil organic matter will assist the Department of Natural Resource's Division of Forestry and private land owners and managers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	50	2000	0	0
2012	50	2000	0	0
2013	50	2000	0	0
2014	50	2000	0	0
2015	50	2000	0	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total

Year	Research Target	Extension Target	Total
2011	0	0	0
2012	1	0	0
2013	2	0	0
2014	2	0	0
2015	2	0	0

V(H). State Defined Outputs

1. Output Target

- Workshops, demonstrations, short courses, classes, field days, and conferences organized and conducted.

  2011:5 **2012:**5 **2013:**5 **2014:**5 **2015:**5

- Bioenergy crop varieties tested.

  2011:4 **2012:**4 **2013:**5 **2014:**6 **2015:**7

- Bioenergy research projects conducted.

  2011:5 **2012:**6 **2013:**7 **2014:**8 **2015:**9

- Bioenergy crop and technology publications.

  2011:3 **2012:**4 **2013:**4 **2014:**5 **2015:**5

- Community, organizations, and one-on-one consultation conserning bio-based energy opportunities.

  2011:20 **2012:**20 **2013:**20 **2014:**20 **2015:**20

V(I). State Defined Outcome

O. No.	Outcome Name
1	Identify crops suitable for sustainable production of bio-based energy in Alaska.
2	Identify new value-added uses for by-product from bio-based energy crops and woody species.

Outcome # 1

1. Outcome Target

Identify crops suitable for sustainable production of bio-based energy in Alaska.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:5	**2012:**5	**2013:**3	**2014:**2	**2015:**2

3. Associated Knowledge Area(s)

- 125 - Agroforestry
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1862 Research

Outcome # 2

1. Outcome Target

Identify new value-added uses for by-product from bio-based energy crops and woody species.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 125 - Agroforestry
- 131 - Alternative Uses of Land
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

Alaska is the harbinger of climate change in the North. The region is already seeing impacts of the changing climate in its sea ice degradation, the ecology of the boreal forest, and its ice-impregnated northern soils. This will influence the thrust of ecosystem management in coming years. Policy and regulation and competing public priorities are already coming to the fore as endangered species affect land use and hence management of forests and rangelands. Programmatic challenges will occur as consideration is given to the management of the forests for fuels to mitigate demands on petroleum and coal supplies. A continuing rise in transportation costs is already drawing attention to regional and local management for energy and other local wood products. Finally, as demographics of the population change and demographics of the forest industry change toward management with a specific product objective as well as an objective of sustainable and resilient northern ecosystems, there will be a need for continuing adult education and higher education to fill workforce vacancies or new positions that are created to meet demands in energy and ecosystem management fields.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Description

The objective of the AFES and Extension is to set in place a feed-back loop that brings information from our units to our clientele and to bring clientele input back to us to enable us to continue to adjust our work, within the capabilities of our space and budgets, to meet the needs of the people of Alaska.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- Telephone
- On-Site
- Structured
- Unstructured
- Case Study
- Observation
- Portfolio Reviews
- Tests

Description

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.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Childhood Obesity

2. Brief summary about Planned Program

As is the case nationally, the number of overweight and obese individuals in Alaska is increasing. This affects individuals of all ages, from all areas of the state, of all racial and ethnic backgrounds, and with all levels of education and income. Increases in obesity have occurred rapidly, and 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 will address the problem with a program that focuses on making healthy food choices and increasing physical activity. Training will be conducted with youth, teachers, 4-H leaders, youth group organizers, parents and community partners to supply techniques for working directly with youth in the area of obesity.

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	30%		0%	
724	Healthy Lifestyle	45%		0%	
806	Youth Development	25%		0%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

In adults, excess weight and obesity are associated with a variety of poor health outcomes ranging from coronary heart disease and type 2 diabetes to premature death. Aside from an increased likelihood of becoming overweight adults, children and adolescents who are overweight or obese are at increased risk for a variety of negative physical, social and emotional problems. Student nutrition and physical activity have a direct link with academic performance as evidenced by academic test scores, improved daily attendance and better class participation. In 2008, one-third of students entering kindergarten or first grade in Anchorage were above a normal weight. Data on a statewide survey of high school students showed that 27 percent of teens surveyed were above a normal weight and an additional 11 percent were classified as obese. Although individual weight status is determined by many factors, the primary causes of excess weight and obesity in most individuals is an imbalance between nutrition and physical activity. Television viewing and computer/video game playing (screen time) have been identified as a contributor to obesity among children. The American Academy of Pediatrics recommends limiting television and other screen time to not more than two hours per day for children ages two to 18. One-third of Alaska adults and half of high school students have three or more hours of screen time daily. Three-quarters of adults and 84% of high school students eat less than the recommended amounts of fruits and vegetables daily. Lack of access to local grocery stores and full service restaurants contributes to poor dietary patterns and obesity. Disparities in food access are greatest in lower income, minority, urbanized neighborhoods, as well as less populated rural areas. Access to healthy food in local stores is judged to be difficult or impossible for 15% of Alaskans. Data suggests that most Alaskans do not recognize that

they are overweight.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

• CES obesity prevention will focus on risk and protective factors influencing health of youth and adults.

• Health of youth and families can be improved through increased knowledge and resources provided by CES.

• Youth and their families need to be involved in meaningful learning experiences

• Health behaviors are complex, so there will continue to be risk and protective factors of which CES programs may have little impact.

• Youth and families have the ability to reach optimal health and well-being.

• Research will continue to inform healthy living practices.

2. Ultimate goal(s) of this Program

• The incidence of overweight and obese Alaska youth will be reduced.

• The number of youth making healthy food choices will increase.

• Youth will engage in more physical activity.

• Leaders and community contacts will be trained in methods to increase health food choices and physical activity in youth.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890

Year	Extension		Research	
	1862	1890	1862	1890
2011	1.0	0.0	0.0	0.0
2012	1.0	0.0	0.0	0.0
2013	1.0	0.0	0.0	0.0
2014	1.0	0.0	0.0	0.0
2015	1.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

• Collaborate with other organizations including Public Health, schools, day care facilities, 4-H, community organizations, tribal organizations, and youth groups to offer programming on childhood obesity focusing on physical activity and nutrition

• Programming will be conducted with parents in choosing nutritional foods and preparing meals for their families.

• Group and one-on-one educational activities with day care providers and parents will provide individuals with information necessary to increase physical activity of children.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion	● Newsletters ● Other 1 (publications)

3. Description of targeted audience

• teachers and parents of youth

• caregivers

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	50	100	50	100

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	50	100	50	100
2013	50	100	50	100
2014	50	100	50	100
2015	50	100	50	100

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0

V(H). State Defined Outputs

1. Output Target

- Field faculty will provide physical activity and nutrition programming for teachers and parents. Output is the number of teachers and parents who are trained.

  2011:20 **2012:**20 **2013:**25 **2014:**25 **2015:**30

- Field faculty will provide physical activity and nutrition programming through one-on-one consultations and consultations with other organizations.

  2011:10 **2012:**12 **2013:**12 **2014:**15 **2015:**15

- Faculty will develop educational resources on physical activity and nutrition.

  2011:2 **2012:**2 **2013:**3 **2014:**3 **2015:**3

V(I). State Defined Outcome

O. No.	Outcome Name
1	Increase physical activity during a school day. Counting number of classrooms participating.
2	Increase youth and parents' understanding of healthy food choices. Counting contacts with youth and parents.
3	Youth and families have a more positive attitude toward healthful foods and/or are willing to try new foods. Counting number of families.
4	Increase knowledge, attitudes, skills and aspirations to increase physical activity habits. Counting number of youth.

Outcome # 1

1. Outcome Target

Increase physical activity during a school day. Counting number of classrooms participating.

2. Outcome Type : Change in Action Outcome Measure

2011:2	**2012:**3	**2013:**4	**2014:**5	**2015:**6

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Increase youth and parents' understanding of healthy food choices. Counting contacts with youth and parents.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:50	**2012:**60	**2013:**70	**2014:**80	**2015:**90

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Youth and families have a more positive attitude toward healthful foods and/or are willing to try new foods. Counting number of families.

2. Outcome Type : Change in Action Outcome Measure

2011:5	**2012:**7	**2013:**9	**2014:**11	**2015:**13

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Increase knowledge, attitudes, skills and aspirations to increase physical activity habits. Counting number of youth.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:10	**2012:**12	**2013:**14	**2014:**16	**2015:**18

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

Description

Cost of food may rise making healthy food unaffordable. Cold weather and short days affect the ability of children to go outside and participate in physical activity. Demands on family time will continue to be a factor in determining which programs they may participate in. Changes in society, including health practices, services and access will impact youth and families.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)

Description

This program is so new that evaluation studies are under discussion.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- Telephone
- On-Site
- Structured
- Unstructured
- Case Study
- Observation
- Portfolio Reviews
- Tests
- Journals

Description

This program is so new that evaluation studies are under discussion.

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

Food-borne diseases and threats to food safety constitute a growing public health problem. Cooperative Extension's mission is to help consumers improve the safety of food all the way from production to final consumption. Food safety utilizes various resources and strategies to ensure that all types of foods are properly stored, prepared and preserved so they are safe for consumption. Practicing food safety not only helps to maintain good health, but can also help save money. Storing food properly, as well as making sure to prepare food in a clean environment, means that there is less chance of food spoiling and being thrown out. From this perspective, proper kitchen safety stretches the monthly food budget and allows households to enjoy more food at a lower cost. Food safety programming education involves safety and preparation, Alaska indigenous foods and safe food preservation. Alaska Natives both consume locally harvested and purchased imported foods. Alaska has highly nutritious, seasonal production of wild and home-grown food ranging from wild berries to vegetables from gardening and from home-grown beef and pork to wild game. Proper preservation of these foods once collected or harvested is of utmost priority to the health of Alaska.

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
502	New and Improved Food Products	10%		0%	
503	Quality Maintenance in Storing and Marketing Food Products	20%		0%	
504	Home and Commercial Food Service	60%		0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	10%		0%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Alaska has an abundance of nutritious seasonal, wild and home-grown foods that require proper development and preservation methods. With the variety, quantity, season and location of indigenous food sources, adequate information on preservation is essential in maximizing the value and shelf life of nutrition sources. Along with education on better choices in diet, exercise and care, Alaskans need information of proper development and preservation of these wild and home-grown foods. New food products will be developed using Alaska-produced ingredients, both wild harvested and those produced from home-grown sources. Home food safety remains a critical issue for families with over 30 percent of the suspected cases of food-borne illness occurring at home. Home food safety concerns revolve around three main functions: food storage, food handling, and cooking.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

• Alaskans' health can be improved through healthier lifestyle choices in food.
• Developing and improving Alaska food products is critical in supporting sustainable communities, especially as the demand for information increases.
• With transportation, food and energy costs being prohibitive, especially in rural regions, families require easily accessible training in safe food preparation.

2. Ultimate goal(s) of this Program

- Reduce the incidence of food-borne illness

- Provide a safer food supply by increasing awareness of food safety in preservation and preparation
- Address and eliminate causes of microbial resistance to contaminants,
- Educate consumer and food safety professionals,
- Develop food processing technologies to improve safety.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	3.0	0.0	0.0	0.0
2012	3.0	0.0	0.0	0.0
2013	3.0	0.0	0.0	0.0
2014	3.0	0.0	0.0	0.0
2015	3.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Field faculty will conduct workshops and meetings, deliver educational services, provide training, and conduct consultations with clientele. Researchers will develop products, curricula and resources, provide training and conduct consultations with clientele Educators and researchers will conduct needs assessments, work with the media, partner with other agencies and organizations, write articles, publications and fact sheets, and facilitate events, activities, and teachable moments.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods

● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Public Service Announcement ● Newsletters ● Web sites

3. Description of targeted audience

Food preparers in homes and schools, school teachers (public and private), individuals interested in healthy lifestyles, low-income individuals and families, especially women with young children, individuals interested in a subsistence lifestyle, individuals interested in food preservation,home food growers, hunters.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	800	30000	100	2000
2012	820	31000	110	2050
2013	840	32000	120	2100
2014	860	33000	130	2150
2015	880	34000	140	2200

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0

V(H). State Defined Outputs

1. Output Target

- Extension faculty will offer workshops in harvesting and food preservation techniques.

2011:60	**2012:**60	**2013:**65	**2014:**65	**2015:**70

- New food products will be developed using Alaska-produced ingredients.

2011:3	**2012:**3	**2013:**3	**2014:**4	**2015:**4

- Extension faculty will offer workshops in food safety.

2011:10	**2012:**12	**2013:**12	**2014:**15	**2015:**15

V(I). State Defined Outcome

O. No.	Outcome Name
1	Participants in food preservation and food safety classes will improve their food preservation and food safety practices.
2	New varieties and new uses of animal and plant products will result in increased production of Alaska-based products. Outcome is number of products and publications.

Outcome # 1

1. Outcome Target

Participants in food preservation and food safety classes will improve their food preservation and food safety practices.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
190	200	210	220	230

3. Associated Knowledge Area(s)

- 504 - Home and Commercial Food Service
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

New varieties and new uses of animal and plant products will result in increased production of Alaska-based products. Outcome is number of products and publications.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
2	2	2	3	3

3. Associated Knowledge Area(s)

- 502 - New and Improved Food Products
- 504 - Home and Commercial Food Service

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Programmatic Challenges

Description

Almost 90 percent of food that is consumed in Alaska is imported from outside the state. Food purchased and brought in from other sources may be contaminated. Harvesting techniques of local foods may not follow proper food sanitation procedures.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Comparisons between program participants (individuals, group, organizations) and non-participants

Description

Newly developed food preservation DVDs contain evaluations that have guided editing of additional DVDs in this series.

2. Data Collection Methods

- Sampling
- Mail
- Tests

Description

Survey of agents' activity reports and one on one consultations with agents.