2007 University of Alaska Combined Research and Extension Plan of Work

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 (Extension) 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. The School of Natural Resources and Agricultural Sciences, AFES and Extension 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 that establishes a mutual set of obligations. The federal government provides a predictable pool of matching funds to universities that agree to maintain programs of research, instruction, and public service in agriculture and natural resources relevant to that state, the nation, and the world. A special characteristic of land-grant programs is their commitment to develop and apply knowledge important in the real world for the successful long-term management of natural resources to meet both human needs and values. Criteria that we use to set priorities in our work must reflect our commitment to the land-grant mission, as well as a commitment to excellence.

The Agricultural and Forestry Experiment Station is the research arm of SNRAS. It is imbedded within the School and is a part of its research, education, and outreach activities. 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, Plant, Animal, and Soil Sciences, and Resources Management. Extension is not a part of SNRAS but is under the administration of the College of Rural and Community Development. Extension operates eight district offices around the state and is organized into four program areas: Land Resources; Natural Resources Stewardship and Rural Development; Home Economics, and Youth Development. AFES and Extension are funded by federal formula 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 formula funds received which includes Hatch, Hatch Multistate and McIntire-Stennis funding sources. 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 nations' 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, extension, 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 Extension. The University of Alaska Fairbanks in general and SNRAS/AFES and Extension 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 three decades of the 20th century, 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 Extension give Alaska's resource owners and users essential components of this knowledge. Extension will play 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.

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, hay, and manufactured livestock feeds; controlled environment products including bedding plants, and florals; landscape ornamentals; 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. Extension will be a critical partner to SNRAS/AFES in providing a two-way linkage between researchers and producers to deliver the latest research findings and educational and outreach opportunities.

MISSION STATEMENTS

The mission of SNRAS/AFES is to "generate and provide knowledge and train students for successful long-term management

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

The mission of Extension 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." Extension 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 Extension 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 state-wide system, federal and state agencies, non-governmental organizations, private industry; and through multi-state collaborations with other land-grant universities. 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.

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. Extension 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, then our research programs direct their attention to these topics and seek support or partnerships. Outreach and extension programming carried out by Extension are conducted in response to identified stakeholder needs and interests.

STAKEHOLDER INPUT

Extension jointly sponsors many agricultural and horticultural conferences and outreach activities with SNRAS/AFES where the units share mechanisms to gather formal and informal stakeholder input. Extension also relies on advisory groups as an important stakeholder needs assessment process. Extension has a Statewide Advisory Council and faculty in district across the state use local advisory committees to provide them with community input related to local program stakeholder needs and interests. The SNRAS/AFES Board Of Advisors meets at least twice each year (and additional meetings as deemed necessary) with the Dean, Director, Department Heads, and selected faculty and students to assist in establishing priorities and developing program direction for in consultation with appropriate constituencies.

STRATEGIC PLANNING PROCESS

Planned programs define in more specific and concrete terms the different aspects of our mission. Emphasis areas are the natural resource topics, issues, and problem areas that unify and delimit the work of the SNRAS/AFES and Extension. The purpose of defining planned programs is 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 help direct new programs and programs currently in place, and to provide a direction for the kind of new or retained faculty expertise needed. 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.

Research planned programs are: High Latitude Agriculture, High Latitude Soils, Ecosystem Management, Natural Resource Use and Allocation and Geographic Information. The five research planned programs for SNRAS and AFES are the five emphasis areas in our Strategic Plan produced by faculty in 2004. The Plan reflects ideas and advice given by SNRAS and AFES client user groups, students, the Board of Advisors for the school and station, panels of expert advisors representing clientele, state and national peers and cooperators, and UAF administration. The Strategic Plan 2004 is used to set priorities for the school or station as will this POW. The partnership with Extension 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.

Strategic planning within Extension was undertaken to set organization priorities; facilitate the partnership with SNRAS/AFES and to promote linkages with other units in the University of Alaska system. The strategic planning resulted in the division of the Land Resources program into two new programs: Agriculture and Horticulture and Natural Resource Stewardship and Rural Development. The new Agriculture and Horticulture program will enable there to be closer ties between extension programming with research, education and outreach activities in the Plant, Animal, and Soil Science Department in SNRAS/AFES.

As part of recent strategic planning Extension conducted statewide needs assessments that gathered stakeholder input. Issues

identified were related to individual, family and community sustainability. Extension is adapting to meet these stakeholder identified priorities. Traditional programs in home economics like food preservation remain in high demand in Alaska due to the high proportion of the population that practices a whole or partial subsistence lifestyle. Stakeholders are also demanding new programming like financial management, parent education, and achieving healthy lifestyles. Rising energy costs are increasing already strong demand for housing and home energy use programming. Youth development programming builds upon a strong 4-H program that in Alaska often focuses on natural resources versus traditional agricultural programming. Extension youth development programming is also expanding into workforce development and working with children of military families to cope with frequent relocations and deployment of parents.

Extension's strategic planning officially recognized the importance of programming addressing invasive weeds and noxious plants. Building on prior work and faculty expertise, Extension 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. Natural resource management-related programming is a priority for Extension in Alaska. Rural development is also a critical need. Forming the natural resources program area will permit Extension to focus more energy on these issues and integrate more of these activities with research, education and outreach in SNRAS/AFES and other units at UAF and in the UA system. The new Natural Resource Stewardship and Rural Development program will focus on promoting natural resource-based economic development in rural communities and helping these communities manage their natural resources to their optimum benefit. The new program should also provide a base for closer collaboration with the Resources Management Department in SNRAS/AFES. Strong and growing relationships between SNRAS/AFES and Extension are essential to the success of both units.

This Plan of Work will help strengthen the working relationship between SNRAS/AFES and Extension. We share goals and missions in our commitment to excellence in research, education, extension, and outreach. With finite resources, we will achieve more working together than separately.

PLANNED PROGRAMS

High Latitude Agriculture

Since 1975, the Alaskan economy has been dominated by activities related to development and production of oil. Other resources contributing to lesser degrees are fisheries, mining, tourism, timber, and agriculture. As oil production approaches its finite limits, economic diversification is becoming an ever increasing topic of conversation in the legislature and the halls of private sector businesses. Alaska's location relative to the Pacific Rim and Asian markets makes export of agricultural and forest products of significant interest; however, there currently is no infrastructure in place for exporting of Alaska farm products. 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, flowers, and ornamentals, 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.

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 adoption of knowledge derived from research in other states.

High Latitude Soils

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. AFES operate soil laboratories in Alaska and will remain one of the major sources of information about Alaska soils. Under current Alaska climate variability, cold soils are experiencing significant changes that are in turn causing changes in natural and managed ecosystems.

Management of Ecosystems

Alaskans live in an environment, the circumpolar north 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. AFES will play a pivotal role in teaching and providing information about management of Alaskan and northern ecosystems. 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 ethnic botanicals. Recreation opportunities will continue to be attractive for tourists and residents providing business opportunities for Alaskans but also requiring a closer attention to ecosystem management. Communities will increasingly depend on Alaska's natural resources for viable economic

development to sustain their communities and promote family well being. Policy to sustain this growth that mirrors sociological and technological change will be critical.

Natural Resource Use and Allocation

Alaska is a state with an urban core and rural periphery. Major resources development activities are 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. Rural communities are lacking in even the most basic amenities such as adequate sanitation and efficient energy sources that would attract appropriate resource developers. As a result, these communities depend on resources for subsistence. 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. Research priorities will be determined through joint collaboration with stakeholders in communities, industry, and state and federal agencies. Our Board of Advisors which has two members serving rural communities and Alaska native populations will assist in obtaining input from those that have been underserved in the past.

Geographic Information

Nearly all maps and most data about natural resources are now stored, shared, and analyzed as digital spatial files. Natural resource managers, and increasingly a broad array of stakeholders, need to understand the concepts and practice of creating, analyzing, and displaying spatially referenced natural resource and human community data. SNRAS will be the primary educator in advanced Geographic Information Systems and will continue to provide leadership in the theory and practice of using geo-referenced data.

Agriculture and Horticulture

Agriculture and horticulture are two main areas of information sought by Alaskans and are the backbone of the Land Resources program in Alaska's Cooperative Extension Service. Agriculture and horticulture outreach includes the areas of animal agriculture, agronomy, agro-forestry, and horticulture. Areas of service within animal agriculture include production animal agriculture, home animal production, and companion animals. Areas of service in agronomy include cereal grains, forages, and Conservation Reserve Program (CRP) land management. Areas of service in agro-forestry include Christmas tree production, livestock related forestry uses, and other food products produced via forest or woodlot management. Areas of horticulture are divided into two broad areas, commercial horticulture and consumer horticulture. Commercial horticulture includes production of fruits and vegetables 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 turf management, commercial lawn maintenance, and sod production. Consumer horticulture includes home and community gardening and landscaping and lawn maintenance by the homeowner.

Invasive Weeds, Noxious Plants and Pest Management

Integrated pest management (IPM) is the primary approach Extension uses to assist its stakeholders when providing pest management information and educational outreach. Extension has operated a collaborative, statewide IPM education program since 1981 providing research-based, practical information to help groups and individuals understand pests and choose appropriate control options. In addition to public outreach, IPM staff performs critical insect pest sampling and monitoring projects.

Youth Development

One of two major approaches Extension will use to promote 4-H youth development is education with a focus on skills and knowledge targeting individual learners with the goals of developing competency in various knowledge areas. The content approach to 4-H follow Mission Mandates as set out by CSRESS. Content meaning information and experiences created by individuals, institutions, and technology to benefit audiences in venues that they value. The Mission areas are three-fold: Science, Engineering, and Technology – tied to agricultural and environmental issues; Healthy Lifestyles – tied to human health and well-being; and Citizenship – tied to the activities of people within institutions and government for the common good. Programs of the following types will be conducted across Alaska to achieve Extension's youth development goals: 4-H clubs, school enrichment programs, after school activities, and summer camps.

The contextual approach that will underlie 4-H youth development programming focuses on developmental needs targeting opportunities for youth transitioning from childhood to adulthood by meeting needs in positive ways. Context means using circumstances and conditions which surround an event or individual; the circumstances or settings which determine, specify, or clarify the meaning of an event. 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 Extension 4-H and youth development programming within this contextual framework that include generosity, belonging,

independence, and mastery.
Sustainable Individuals, Families, and Communities
Extension's Sustainable Individuals, Families and Communities Program include five areas:
1) Health, Nutrition and Foods includes areas such as 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 includes areas such as lifespan development, transitions, grief and loss, and caregiver training.
3) Consumer Resource Management includes areas such as estate planning, budgeting, transitions, financial management, time management, stress reduction.
4) Homes and Energy include areas such as indoor air quality, home maintenance and repair, building science and energy use.
5) Emergency Preparedness includes areas such as families and communities responding to natural and manmade disasters.
Natural Resource Stewardship
The Natural Resource Stewardship and Rural Development program will address stakeholders' need for unbiased, science based information about natural resource issues in forestry, mining, water and rural communities. Much of Alaska's natural resource wealth is located in rural areas, but urban populations have an impact on natural resource issues, e.g., forest resources and essential water resources. Many urban Alaskans employment is directly or indirectly linked to natural resources.

Estimated number of professional FTEs/SYs total in the State.

Year	Extenion		Research	
	1862	1890	1862	1890
2007	30.0	0.0	16.1	0.0
2008	30.0	0.0	17.0	0.0
2009	30.0	0.0	20.4	0.0
2010	30.0	0.0	20.4	0.0
2011	30.0	0.0	21.8	0.0

Merit Review Process

The merit review process that will be employed during the 5-Year Plan of Work cycle

- Internal University Panel
- External University Panel
- Expert Peer Review

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.
RESEARCH
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 Formula 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.

EXTENSION

Merit review of the Extension components of the POW and how the proposed activities will integrate Extension's activities with SNRAS/AFES will consist of internal and external reviews. Internal review of the Extension 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 Extension’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 merit reviews will be incorporated into future iterations of the Extension components of the POW. Whenever the Extension components of the POW undergoes major revisions, the merit review process described above will be used to assess the utility of the proposed changes.

Merit review means an evaluation whereby the quality and relevance to the State program goals are assessed.

Program Review Process

a. Merit Review. Effective October 1, 1999, each 1862 land-grant institution and 1890 land-grant institution must have established a process for merit review in order to obtain agricultural research or extension formula funds. This was established in the FY 2000– 2004 5-Year POW by all institutions. b. Scientific Peer Review. A scientific peer review is required for all research funded under the Hatch Act of 1887, including Multistate Research Fund. For such research, this scientific peer review will satisfy the merit review requirement specified above. c. Reporting Requirement. As a component of the 5-Year POW, each institution depending on the type of program review required will provide a description of the merit review process or scientific peer review process established at their institution. This description should include the process used in the selection of reviewers with expertise relevant to the effort and appropriate scientific and technical standards. In the web-based software, CSREES will provide a check list with the commonly reported types of reviews, as well as a narrative text box to allow for additional information in the form of a brief narrative if needed.

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. Extension 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 and Extension have separate advisory boards. Additionally, faculty and staff routinely conduct informal and formal stakeholder needs assessments for specific planned programs.

RESEARCH: AFES, the research arm of the school, is funded by state appropriations, federal land grant program dollars, and competitive research grants. The school is organized into four departments: Forest Sciences, Geography, Plant, Animal, and Soil Sciences, and Resources Management. Research is carried out in response to identified needs for fundamental and practical knowledge. When state and national research priorities match the SNRAS/AFES programmatic focus and capabilities, then our research programs direct their attention to these topics and seek support or partnerships. 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 Alaska Legislature, the U.S. Dept of Agriculture (especially the Agricultural Research Service, Economic Research Service, Forest Service, and Cooperative State Research, Extension, and Education Service), 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.

EXTENSION: Outreach and extension programming carried out by Extension are conducted in response to identified stakeholder needs and interests. On a statewide level, Extension’s 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 College of Rural and Community Development, the University of Alaska Fairbanks and the University of Alaska were developed with extensive public input provide guidance for strategic issues within Extension. Other important organizational stakeholders that influence Extension programming include, but are not limited to: Alaska Legislature, Dept of Natural Resources (Alaska), Dept of Commerce, Community & Economic Development (Alaska), Dept of Health and Social Services (Alaska), US Dept of Agriculture, Cooperative States Research, Education and Extension Service, Forest Service, Rural Development, US Dept of the Interior, Bureau of Land Management, US Fish and Wildlife Service, US Dept of Energy.

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

RESEARCH: The multistate project (W-112) has assisted reindeer and muskox herds 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. 2.) Hatch project ALK 01-06 “Impact Analysis for Alaska Natural Resources” and “Seafood Marketing and the Management of Marine and Aquatic Resources” (WERA 109) 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. 3.) The multistate project (W-192) 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. JOINT ACTIVITIES Research is examining plant propagation and the nutraceutical properties of blueberries and other berries as joint activities between AFES, the UAF Chemistry department and a private industry partner. 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 at AFES have developed a high quality feed which is producing excellent quality reindeer meat. Extension is working with researchers to demonstrate reindeer meat products. EXTENSION: 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. Extension has extensive resources it provides to related to safe food preparation and preservation that supplement traditional methods. A predominate focus of Extension’s newly formed Natural Resource Stewardship and Rural Development program will be on rural community development, often with an emphasis on Alaska Native communities. The Extension Indian Reservation Program, (EIRP) serves over 40 native villages. Extension 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’ Food Stamp Nutrition Education Program (FSNEP) provider. In cooperation with the College of Rural and Community Development, Extension is promoting science and math education in rural villages to increase Alaska Native enrollment in post-secondary science and natural resource disciplines. This effort is part of the CSREES sponsored Higher Education Project for Alaska Native and Native Hawaiian Serving Institutions.

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

RESEARCH
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. Research impacts are difficult to measure.
EXTENSION
Extension is committed to greater program accountability, particularly measuring outcomes and impacts. Extension’s 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 CSREES plan of work requirement to increase measurement of outcomes and impacts has provided the impetuous to move Extension to strengthen its program evaluation. It will be an evolutionary process where faculty gain experience and comfort with outcome and impact assessment as well as including planning for evaluation during the program planning phase. To assist faculty in their collection of data to measure outcomes and impacts, Extension has implemented an on-line Faculty Data Management System. The data base system is in its first year of pilot testing and will be fully operational for the first year of the POW.

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

RESEARCH
The University of Alaska Fairbanks in general and SNRAS/AFES in particular has 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 (High Latitude Agriculture, High Latitude Soils, Management of Ecosystems, Geographic Information, and Natural Resource Use and Allocation). Within these five emphasis areas, the strategic plan commits SNRAS/AFES to:
Improve efficiency of resource management in Alaska through improved transfer of critical in 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.
EXTENSION

The POW process that stresses outcomes and impacts is leading Extension 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, Extension will be better able to determine program effectiveness and the cost effectiveness of programs offered. This information will be critical in making future resource allocation decisions. The CSREES POW requirement to generate outcome and impact oriented objectives with related accountability expectations has lead Extension to focus its recourses on fewer high priority topics.
Faculty within Extension were charged with developing the logic models for each of the Extension-focused POW planned programs. This activity has given faculty ownership of the planned programs and responsibility for achieving the planned outcomes and impacts. Extension 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. The recently implemented Faculty Data Management System will be a useful tool in helping faculty and administration to assess programs effectiveness.

Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation (Check all that apply)

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public

Brief explanation.

RESEARCH
SNRAS/AFES has traditionally met with regional audiences around the state in both formal and informal settings each year. Examples of these include:
Regional and Statewide Farm Bureau
Mat-Su Potato and Vegetable Growers
Delta Farm Forum
Greenhouse Growers Annual
Reindeer Herders Association
Alaska Northern Forest Cooperative
Alaska Livestock Producers
On-demand meetings at the request of stakeholders
These traditional meetings will continue to be focal points for listening to and receive input from stakeholders. As required by the AREERA of 1998, and in cooperation with the Cooperative Extension Service, these will be advertised as broadly as possible and identified as points of contact for public input into research and extension program development.
EXTENSION
Extension jointly sponsors many agricultural and horticultural conferences and outreach activities with SNRAS/AFES where the units share mechanisms to gather formal and informal stakeholder input. Extension also relies on advisory groups as an important stakeholder needs assessment process. Extension has a Statewide Advisory Council and faculty in district across the state use local advisory committees to provide them with community input related to local program stakeholder needs and

interests. The State Advisory Council meets in-person at least twice annually and has audio-conference meetings regularly throughout the fall, winter and spring. Faculty, staff and administrators within Extension are also members of the advisory committees and boards of organizations that are stakeholders of the organization. This service on committees and boards provides another venue for stakeholders to provide input to Extension.
In the fall of 2005 in preparation for the 2007-2011 POW and as part of strategic planning, all Extension faculty were required to conduct formal needs assessments within their districts and of their stakeholders. As part of their needs assessments, the faculty were required to assess the needs of underserved audiences and how they could be better served by Extension programming. The individual faculty used a variety of techniques. The faculty wrote needs assessment reports that were shared with all other faculty within Extension. The needs assessments were a critical part of Extension's POW and strategic planning process used to identify program priorities. In addition, Extension faculty members routinely gather stakeholder input as part of their program planning and development process.

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.

RESEARCH
The SNRAS/AFES Board Of Advisors: At least twice each year (and additional meetings as deemed necessary) the Dean, Director, Department Heads, and selected faculty and students will meet with the Board of Advisors for assistance in establishing priorities and developing program direction for SNRAS/AFES in consultation with appropriate constituencies. The membership of the Board of 11 members is appointed by the UAF Chancellor on recommendations provided by the Dean and Director and represents a broad range of scientific, industry, governmental, student, and citizen interests. By-laws for the Board of Advisors and minutes of all meetings are available upon request.
EXTENSION
Members from the public who have participated in or who have an interest in Extension's 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 Extension or direct interest in Extension programming. Some of Extension's major stakeholder organizations includes, but are not limited to, Alaska State Legislature, Farm Bureau, Grange, Reindeer Herders Association, Greenhouse Growers, Food Banks of Alaska, Department of Natural Resources (Alaska), Forest Service, Boys and Girls Clubs, and Future Farmers of America.
As an additional mechanism to gather stakeholder input, Extension has a State Advisory Council. The nine members of the council are appointed by the Executive Dean of the College of Rural and Community Development 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 Extension employees.

2(B). 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. 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

RESEARCH
Periodically, the Board of Advisors develop and make available on the SNRAS website, a strategic planning survey to solicit

stakeholder input from all citizens of Alaska including traditional stakeholders as well as underserved populations. The survey availability will be advertised in major newspapers, listservs, and Cooperative Extension outreach to rural sites. Updated versions of the survey will be utilized in future years as needed to maintain broad input for SNRAS/AFES programs.

EXTENSION

Extension uses a wide array of methods to gather stakeholder input. The Extension Director required all faculty to conduct formal needs assessments within their districts in preparation for the 2007-2011 POW. Faculty were encouraged to include traditional customers, partners and collaborators in their assessments and to consider new clientele groups and the stakeholder groups associated with these new clientele in their needs assessment. They were also specifically required to assess the needs of underserved groups and how could be better served by Extension When feasible, faculty use the needs assessments generated by stakeholders organizations, or other organizations like municipal governments. The most common forms of needs assessments used by Extension faculty included surveys of existing clientele, focus groups, and use of advisory committees. In support of stakeholder needs assessment, Extension administration conducted a survey of Alaska state legislators to learn directly from this important stakeholder group the issues they thought were most important to the state.

Standing advisory committees are also an important mechanism Extension uses to gather stakeholder input. Extension has a State Advisory Council composed of individuals from across the state that provide input on global issues affecting the organization like budget, program priorities, and future trends. Field-based faculty use advisory committees to provide them with stakeholder input related to programming priorities at the grassroots level.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities
- Other (Underserved populations identified)

Brief explanation.

RESEARCH

The five research planned programs come directly from the strategic plan which was produced by the faculty of SNRAS and AFES. It 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. The plan will be used to set priorities in meeting the many needs for knowledge about Alaska and circumpolar resources and geography, both as opportunities for expansion present themselves and should the need for retrenchment occur.

Input is considered in the budget process. Formula funds are reallocated by the Administrative team in response to research needs determined by state and federal priorities and researcher input. Responding to emerging issues is a concern although limited by size and location. Stakeholder input influences our hiring process as we respond to the research needs of our state. We plan to add a forest health position to address the stresses and sustainability related to climate warming that is presently bringing noticeable change to the subarctic. Funding research that will help provide economic opportunities to rural communities will continue to be a priority.

EXTENSION

The Extension director required all faculty to conduct needs assessments in the fall of 2005 as part of a parallel POW and strategic planning process. The needs assessment results were shared with all Extension faculty and were used as part of strategic planning. The needs assessments helped faculty to identify emerging issues which led to the identification of the five planned programs that will provide the focus of Extension programming during this five-year POW cycle.

Invasive Weeds, Noxious Plants and Pest Management

Sustainable Individuals, Families, and Communities

Youth Development

Agriculture and Horticulture

Natural Resource Stewardship

At the conclusion of strategic planning, Extension faculty were charged to form work groups around the five planned programs to generate the POW mandated logic models. The faculty used their needs assessments to assist them in the development of the logic models. The faculty also used their needs assessments to generate their individual work plans, called workloads at UAF. Within Extension administration, the faculty needs assessment results contributed to the identification of priority objectives for Extension programming. Based upon information generated by the needs assessments, future programming needs related to hiring have been affected; for example, recruitment of a new faculty in home economics with skills in nutrition and health was recently concluded. Stakeholder needs will continue to be a driving factor in determining Extension priorities and programming.

Planned Program Table of Content

1. Name of the Planned Program

Agriculture and Horticulture

2. Program knowledge areas

- 308 10% Improved Animal Products (Before Harvest)
- 302 15% Nutrient Utilization in Animals
- 307 10% Animal Management Systems
- 601 5% Economics of Agricultural Production and Farm Management
- 213 5% Weeds Affecting Plants
- 216 5% Integrated Pest Management Systems
- 102 10% Soil, Plant, Water, Nutrient Relationships
- 205 40% Plant Management Systems

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

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

5. Brief summary about Planned Program

Agriculture and horticulture are two main areas of information sought by Alaskans and are the backbone of the Land Resources program in Alaska's Cooperative Extension Service. Agriculture and horticulture outreach includes the areas of animal agriculture, agronomy, agro-forestry, and horticulture. Areas of service within animal agriculture include production animal agriculture, home animal production, and companion animals. Areas of service in agronomy include cereal grains, forages, and Conservation Reserve Program (CRP) land management. Areas of service in agro-forestry include Christmas tree production, livestock related forestry uses, and other food products produced via forest or woodlot management. Areas of horticulture are divided into two broad areas, commercial horticulture and consumer horticulture. Commercial horticulture includes production of fruits and vegetables 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 turf management, commercial lawn maintenance, and sod production. Consumer horticulture includes home and community gardening and landscaping and lawn maintenance by the homeowner.

6. Situation and priorities

Situational overview: Alaska imports about 95% of the food it consumes. Alaska has minimal agricultural infrastructure and virtually no processing capability.

Biological overview: Alaska agriculture covers a large geographic region and a large range of climatic conditions. All regions are characterized by a short growing season (May-Sept.), cold soils, and long summer day length.

Animal industries: Alaska's animal industry is small. Predominant livestock include beef cattle and reindeer with small numbers of dairy cattle, bison, elk, goat, sheep, yak and musk ox. There are numerous farms with a few head of livestock or poultry for home food production. Horse numbers are large in areas along the road system and constitute a major consumer of forage crops. The small dairy industry faces several challenges including loss of one major slaughter facility (owned by the State of Alaska), milk processing limitations (one major processor owned by the State of Alaska), and difficulty in getting new cows out of state. Transportation costs for inputs are significant. There is strong market acceptability for Alaska-grown meats and milk. High percentages of both meat and milk are imported.

Consumer horticulture: The strong demand for consumer horticulture (flowers, shrubs, trees, vegetable transplants) is satisfied through local greenhouse and nursery production and large chain outlets that primarily sell imported material. Most greenhouses do not operate year round due to reduced market demand and high energy costs. There is interest in hiring a more highly trained workforce.

Landscape: The larger cities have significant landscape and lawn care operations. There is growing interest in adding native plants to their plantings. These businesses primarily buy from local nurseries. Golf courses are beginning to be a factor, especially in areas receiving significant tourist numbers.

Subsistence gardens: Significant numbers of gardens and food processing techniques provide large portions of family food needs statewide. The high cost of transportation may provide significant market opportunities to high production gardeners

statewide.

Agronomic crops: Grass hay predominates. Low pH soils, unaffordable lime prices, and climatic conditions inhibit legume establishment. A small amount of Barley is grown for livestock feed, but most barley acreage is currently in CRP. Past research on canola has focused on production but lack of processing and marketing infrastructure has restricted crop acceptance. Alaska's agronomic crops are hindered by high transportation costs for obtaining inputs and reaching viable markets.

Vegetable crops: Potatoes are the highest value vegetable crop followed by carrots and lettuce. The majority of vegetables are sold on the wholesale market for in-state consumption. The majority of growers use farmers markets, roadside stands, and subscription farms to sell their crops at premium prices. The tourist industry offers a significant marketing opportunity when crops are available; and inroads into supplying vegetables to this sector of the State's economy are currently being developed. There is a small but growing organic industry in the state.

7. Assumptions made for the Program

A1. Limited financial and personnel resources will always be a weakness, however sufficient resources are found to ultimately provide needed services.

A2. Given the numerous categories within the animal segment of this program, an increase in staffing would be necessary to meet the varied needs of Alaskan animal owners.

A3. Commercial vegetable sales in Alaska are limited to farmer-marketed systems for sale in local markets.

A4. Given the numerous categories within the horticulture segment of this program, an increase in staffing would be necessary to meet the varied needs of Alaskan horticulturalists.

A5. Change in the status of CRP lands in Alaska within the next five years will precipitate assistance to landowners as decisions are made concerning change in land use.

A6. Focus on outreach to nursery and greenhouse owners has declined. Owners often receive training from outside sources.

A7. Alaska will remain a major importer of food and other agricultural and horticultural commodities.

A8. Alaska economy will remain a stable market economy.

8. Ultimate goal(s) of this Program

1. Decrease Alaska's dependence on imported food.
2. Increase production and economic viability of Alaskan crop and livestock farms.
3. Improve food production from community gardens, home gardens and small-scale livestock production.
4. Increase production and economic viability of greenhouses, nurseries, landscapers, garden centers, and other commercial horticulture enterprises.
5. Improve the quality, bueaty and diversity of home gardens and landscapes.

9. Scope of Program

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

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	8.0	0.0	1.5	0.0
2008	9.0	0.0	1.5	0.0
2009	9.0	0.0	2.0	0.0
2010	9.0	0.0	2.0	0.0
2011	10.0	0.0	2.0	0.0

Outputs for the Program

13. Activity (What will be done?)

Group and one-on-one meetings concerning specific sectors of the industry as well as the entire agriculture and horticulture industry in Alaska. Methods in in-person and distance delivery.

14. 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 • Web sites • Other 1 (Publication and media outreach)

15. Description of targeted audience

Commercial vegetable growersOrganic vegetable growersCommercial greenhouse operators, including chain storesCommercial nursery operators, including chain storesGreenhouse owners for home consumptionCommunity gardenersHome gardenersCommercial livestock producersLivestock owners for home consumptionHorse ownersForage growersForage consumersYouth and 4HPolicy makers

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	3400	16000	4800	6500
2008	3500	16250	4900	6750
2009	3600	16500	5000	7000
2010	3700	16750	5100	7250
2011	3800	17000	5200	7500

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Output 1: Extension faculty and staff will offer agricultural and horticultural workshops.

2007: 100 2008: 105 2009: 110 2010: 115 2011: 120

Output Target

Output 2: Extension faculty and staff will provide agricultural and horticultural information through one-on-one consultations and consultations with other organizations. These consultations will be measured in contact hours.

2007: 1500 2008: 1600 2009: 1700 2010: 1800 2011: 1900

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Outcome target 1: Increase crop producers' knowledge of food production practices in Alaska.

Outcome Type: Medium

2007: 50 2008: 40 2009: 30 2010: 20 2011: 20

Outcome Target

Outcome target 2: Increase livestock producers' knowledge of food production practices in Alaska.

Outcome Type: Medium

2007: 50 2008: 40 2009: 30 2010: 20 2011: 20

Outcome Target

Outcome target 3: Increase crop producers' understanding of optimum production practices.

Outcome Type: Medium

2007: 50 2008: 40 2009: 30 2010: 20 2011: 20

Outcome Target

Outcome target 4: Increase livestock producers' understanding of optimum production practices.

Outcome Type: Medium

2007: 50 2008: 40 2009: 30 2010: 20 2011: 20

Outcome Target

Outcome target 5: Increase crop producers' ability to assess their own production practices.

Outcome Type: Medium

2007: 40 2008: 30 2009: 20 2010: 20 2011: 20

Outcome Target

Outcome target 6: Increase livestock producers' ability to assess their own production practices.

Outcome Type: Medium

2007:	40	2008:	30	2009:	20	2010:	20	2011:	20

Outcome Target

Outcome target 7: Increase crop producers' application of optimum production practices.

Outcome Type: Medium

2007:	20	2008:	20	2009:	20	2010:	20	2011:	20

Outcome Target

Outcome target 8: Increase livestock producers' application of optimum production practices.

Outcome Type: Medium

2007:	20	2008:	20	2009:	20	2010:	20	2011:	20

Outcome Target

Outcome target 9: Increase crop producers' production by five percent on a per farm basis over five years or less.

Outcome Type: Medium

2007:	10	2008:	10	2009:	10	2010:	10	2011:	10

Outcome Target

Outcome target 10: Increase livestock producers' production by five percent on a per farm basis over a five year or less.

Outcome Type: Medium

2007:	10	2008:	10	2009:	10	2010:	10	2011:	10

Outcome Target

Outcome target 11: Increase crop producers' economic viability on a per farm basis as measured by net farm income over five years or less.

Outcome Type: Medium

2007:	10	2008:	10	2009:	10	2010:	10	2011:	10

Outcome Target

Outcome target 12: Increase livestock producers' economic viability on a per farm basis as measured by net farm income over a five year or less.

Outcome Type: Medium

2007:	10	2008:	10	2009:	10	2010:	10	2011:	10

Outcome Target

Outcome target 13: Individuals who participate in educational activities related to community and home gardening will increase their knowledge of small-scale agricultural production techniques.

Outcome Type: Short

2007:	50	2008:	50	2009:	50	2010:	50	2011:	50

Outcome Target

Outcome target 14: Individuals who participate in educational activities related to small-scale livestock production will increase their knowledge of small-scale agricultural production techniques.

Outcome Type: Short

2007:	50	2008:	50	2009:	50	2010:	50	2011:	50

Outcome Target

Outcome target 15: Individuals who participate in educational activities related to community and home gardening will apply the techniques they learn.

Outcome Type: Medium

2007:	50	2008:	50	2009:	50	2010:	50	2011:	50

Outcome Target

Outcome target 16: Individuals who participate in educational activities related to small-scale livestock production will apply the techniques they learn.

Outcome Type: Medium

2007:	30	2008:	30	2009:	30	2010:	30	2011:	30

Outcome Target

Outcome target 17: Commercial horticultural producers (greenhouse growers, nurseries, landscapers, garden centers, and other commercial horticulture operations) will increase their productivity.

Outcome Type: Medium

2007:	15	2008:	15	2009:	10	2010:	10	2011:	10

Outcome Target

Outcome target 18: Commercial horticultural producers (greenhouse growers, nurseries, landscapers, garden centers, and other commercial horticulture operations) will increase their economic viability.

Outcome Type: Medium

2007:	15	2008:	15	2009:	10	2010:	10	2011:	10

Outcome Target

Outcome target 19: Alaska’s dependence on imported food will decrease by one percent annually (target measure is 'percent').

Outcome Type: Medium

2007:	95	2008:	94	2009:	93	2010:	92	2011:	91

20. External factors which may affect outcomes

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

Description

{NO DATA ENTERED}

21. 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

{NO DATA ENTERED}

22. Data Collection Methods

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

Description

{NO DATA ENTERED}

1. Name of the Planned Program

Geographic Information - AFES

2. Program knowledge areas

- 121 20% Management of Range Resources
- 605 10% Natural Resource and Environmental Economics
- 903 20% Communication, Education, and Information Delivery
- 123 30% Management and Sustainability of Forest Resources
- 122 20% Management and Control of Forest and Range Fires

3. Program existence : Intermediate (One to five years)

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

5. Brief summary about Planned Program

Nearly all maps and most data about natural resources are now stored, shared, and analyzed as digital spatial files. Natural resource managers, and increasingly a broad array of stakeholders, need to understand the concepts and practice of creating, analyzing, and displaying spatially referenced natural resource and human community data. SNRAS will be the primary educator in advanced Geographic Information Systems and will continue to provide leadership in the theory and practice of using geo-referenced data.

6. Situation and priorities

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. An excellent training base for these future managers is csurricula that incorporate visual learning through electronic media, combine students f rom distantly separated areas in a single "classroom", who must communicate and work together

7. Assumptions made for the Program

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. An excellent training base for these future managers is curricula that incorporate visual learning through electronic media, combine students from distantly separated areas in a single "classroom", who must communicate and work together using a variety of media, and allow students to learn to relate their regional information in biological, physical and social sciences, cultures, and economies to others in a universal geographic format. Thus priorities for the planned program in geographic information incorporate data collection design, data management, land-based information/remote image correlations, and the extension of these skills through curricula that use multi-media experiential education pedagogy to deliver programs remotely and over extensive distances.

8. Ultimate goal(s) of this Program

Obtaining information from vast areas of remote, roadless and uninabited lands is cost prohibitive. Remote means of collecting this information is cost effective but is only meaninflus if it can be accurately interpreted. The goals of the Geographic Information Planned Program are to:
Convert antiquated data sets from permanent forest sample plots and growth and yield research to make them compatible with long term ecological research, fire management, and forest ecosystem data sets.
Incorporate data sets as reasonable into megadata systems such as GINA
Increase information available on wildlife and domestic animal ranges in northwestern Alaska
Develop curricula that train future land managers in data collection and interpretation using experiential pedagogy in distance delivered education programs

9. Scope of Program

- In-State Research
- Multistate Research

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	0.1	0.0
2008	0.0	0.0	0.1	0.0
2009	0.0	0.0	1.8	0.0
2010	0.0	0.0	1.8	0.0
2011	0.0	0.0	1.8	0.0

Outputs for the Program

13. Activity (What will be done?)

Research, education and outreach activities include:
Correlating land-based information with remotely sensed images
Develop curricula that use experiential pedagogy in distance education
Geographic Information Systems
Geography training for teachers
Canadian studies and geography of the north
Economic geography of Alaska
Physical geography and biogeography of Alaska
Maps and spatial data sets of long-term value

14. 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 (acadmic curricula) • Other 2 (K-12 outreach)	• Public Service Announcement • Newsletters • Web sites • Other 1 (Peer Reviewed journal articles) • Other 2 (Research bulletins)

15. Description of targeted audience

Research peer collaborations will be increased with new data management systems. The primary target audience for increased accessibility of data will be agencies and industry including forestry, livestock, and petroleum. Curricula are to be developed as 4 year academic programs in geography and natural resources management with applications in K-12.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	50	0	0	0
2008	60	0	0	0
2009	70	0	0	0
2010	80	0	0	0
2011	90	0	0	0

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Number of databases developed.

2007: 1 2008: 1 2009: 1 2010: 1 2011: 1

Output Target

Number of curricula developed.

2007: 1 2008: 1 2009: 1 2010: 1 2011: 1

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Number of data sets successfully merged with GINA.

Outcome Type: Short

2007: 1000 2008: 2000 2009: 3000 2010: 4000 2011: 5000

Outcome Target

Number of curricula adopted.

Outcome Type: Short

2007: 1 2008: 1 2009: 1 2010: 1 2011: 1

20. External factors which may affect outcomes

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

Description

21. Evaluation studies planned

- Before-After (before and after program)
- During (during program)

Description

{NO DATA ENTERED}

22. Data Collection Methods

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

Description

Any of the above methods may be used to collect data on future projects dependent on the appropriateness of the data needed and the type of research project involved.

1. Name of the Planned Program

High Latitude Agriculture- AFES

2. Program knowledge areas

- 102 10% Soil, Plant, Water, Nutrient Relationships
- 205 10% Plant Management Systems
- 204 10% Plant Product Quality and Utility (Preharvest)
- 307 20% Animal Management Systems
- 306 5% Environmental Stress in Animals
- 301 20% Reproductive Performance of Animals
- 203 15% Plant Biological Efficiency and Abiotic Stresses Affecting Plant
- 302 5% Nutrient Utilization in Animals
- 701 5% Nutrient Composition of Food

3. Program existence : Intermediate (One to five years)

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

5. Brief summary about Planned Program

Since 1975, the Alaskan economy has been dominated by activities related to development and production of oil. Other resources contributing to lesser degrees are fisheries, mining, tourism, timber, and agriculture. As oil production approaches its finite limits, economic diversification is becoming an ever increasing topic of conversation in the legislature and the halls of private sector businesses. Alaska‘s location relative to the Pacific Rim and Asian markets makes export of agricultural and forest products of significant interest; however, there currently is no infrastructure in place for exporting of Alaska farm products. 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, flowers, and ornamentals, 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.

Export markets, which are relatively small at present, consist of reindeer meat and antler, grass seed, seed potatoes, and forest products primarily raw logs. As Alaskaexpands 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 adoption of knowledge derived from research in other states.

6. Situation and priorities

Viable pockets of commercial agriculture exist in Alaska. Cash receipts for commercial agricultural production have been flat over the past five years. Alaska's population, particularly in Anchorage and the Railbelt is growing as are the markets for Alaska grown products. Land suitable for agriculture in south-central Alaska is falling prey to residential and business development and land costs are rapidly becoming prohibitive for crops other than high value products. However, in spite of this horticultural enterprises including greenhouses, nurseries, landscaping, ornamental vegetable and fruit production and turf related products are examples of an expanding horticulture industry. Turfgrass for lawns, golf courses, and sports field are increasing in demand and are directly linked to population. Priorities for research and outreach have transitioned from conventional animal/feed crop farms of the mid-to-late 20th century to producing for the more urban population of the new century. Research priorities identified by producers and consumers clearly point to new crops ranging from new uses of conventional vegetable and fruit crops to value-added food and forest products. We will continue to leverage Hatch funds to obtain additional new crop and new market grant funding.

7. Assumptions made for the Program

Alaska's population will continue to grow primarily in urban and suburban regions
These populations will demand healthier plant-based diets and lifestyle amenities that are supported by a diverse horticulture industry
A rural population that will require continuing research and outreach for subsistence lifestyles of both Alaska native and nonnative populations
A knowledge base of past research, present or current projects, and Alaska based agricultural experience
An assumption of a minimum level of base funds on which to build a grant funded program
Maintenance of faculty expertise that can address the major research topics outlined.

8. Ultimate goal(s) of this Program

Ultimate goalsThe goal of this program is to develop new knowledge for best management practices for producing safe, healthy, and marketable food products and plant materials having aesthetic as well as functional value. Programs that contribute to this goal include:
To annually increase new and value-added commodities for Alaska markets
Develop alternative crops with high cash value for northern climates
Improve nutrient utilization, reproductive performance, and reduce environmental stress in animals
Control plant pathogens affecting plants
Improve plant product quality through cultivar selection, developing best management practices, and developing market strategies.

9. Scope of Program

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

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	6.7	0.0
2008	0.0	0.0	6.7	0.0
2009	0.0	0.0	7.0	0.0
2010	0.0	0.0	7.0	0.0
2011	0.0	0.0	7.0	0.0

Outputs for the Program

13. Activity (What will be done?)

Agricultural research over the next five years will center around the following research topics and activities:
Greenhouse production systems: Alaska's far north location results in extreme temperature and light fluctuations. Outputs from this program will include information for growers to manipulate natural and supplemental light and temperature to extend growing seasons, increase productivity, improve quality and allow local production once considered infeasible at high latitudes.
Controlled environment production systems: Controlled environment production systems. Temporary low maintenance greenhouses or high tunnels offer an opportunity to enhance and extend seasonal crop production for commercial and subsistence growers.
Field research associated with the Georgeson Botanical Garden will be conducted in Fairbanks that will evaluate woody perennials, herbaceous perennials, annual flowers, herbs and vegetables for high latitude production.
Field research at Palmer with potatoes and selected vegetables will evaluate cultivars and management practices, including disease control, for commercial and subsistence production for southcentral Alaska
Alternative crops and/or crop derived products with high cash value.
Field research on perennial legumes and other alternative forage and grain crops that will provide all-important on-farm sources of protein for Alaska livestock enterprises.
Field research on soil nutrient management to improve production efficiency and yields of subarctic plants
Field research in methodology for baling high moisture hay in Alaska.

Turfgrass research to address winter survival of northern adapted cultivars, management practices that improve aesthetic and functional value of turf, and address environmental impact of fertilizer and pesticide use.
Livestock research will include reproductive performance in both domestic and alternative livestock species, local feed and forage for reindeer production and meat quality, and mineral flux in reindeer health
Improved production techniques for reindeer as domestic livestock to add to the expanding market of healthy low fat meats.
Develop market strategies for and investigation of quality characteristics of Alaska Grown products
marketing, quality, and acceptance of Alaska agricultural products .
Plant materials for reclamation of disturbed lands .
Agricultural and forestry production and harvest practices that minimize economic and environmental risks
Sustainable production practices that minimize off-farm and out-of-state inputs for plants and animal nutrition and pest control.
Identify new agricultural products and markets for Alaska producers.
Global change effects on northern plant materials.

14. 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 (Best practices publications)	• Public Service Announcement • Newsletters • Web sites • Other 1 (peer reviewed journal articles) • Other 2 (research bulletins)

15. Description of targeted audience

The targeted audiences are Alaska producers (reached through various user-oriented publications, producer meetings, field days, and one-on-one consultations), other researchers (reached primarily through scientific journal articles and symposia), extension specialists and agents. Recipients will include the operators and managers of commercial enterprises, urban, rural and village subsistence and home users. Youth programs will be delivered through schools, youth groups, FFA, and 4-H programs. Formal instructional programs will seek students with interest and abilities to succeed in a diverse college atmosphere. Research priorities are determined by joint collaboration with faculty, agricultural and forestry producers, Board of Advisors, and federal and state partners. In 2005, we met with the following stakeholders to assess research priorities for this program:
Statewide Board of Advisor
Alaska Farm Bureau
Potato and Vegetable Growers
Grain and forage producers
Reindeer Herders Association
Alaska Division of Agriculture
Alaska Northern Forest Cooperative
Alaska Livestock Producers

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	85	250	0	0
2008	115	250	0	0
2009	130	250	0	0
2010	150	250	0	0
2011	150	300	0	0

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 1 2009 : 1 2010 : 0 2011 : 0

18. Output measures

Output Target

Production practice recommendations for intensively managed vegetable, agronomic, and greenhouse/nursery crops

2007: 25 2008: 0 2009: 0 2010: 0 2011: 0

Output Target

Agricultural and forestry production and harvest practices that minimize economic and environmental risks.

2007: 2 2008: 0 2009: 0 2010: 0 2011: 0

Output Target

Sustainable production practices that minimize off-farm and out-of-state inputs for plant and animal nutrition and pest control.

2007: 2 2008: 0 2009: 0 2010: 0 2011: 0

Output Target

Identify high value plant products.

2007: 2 2008: 2 2009: 2 2010: 2 2011: 2

Output Target

Identify new agricultural and forestry products and markets for Alaska producers.

2007: 2 2008: 2 2009: 2 2010: 2 2011: 2

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Cost savings by producers utilizing more efficient crop production practices (better varieties, disease control, nutrient management, irrigation, etc.)

Outcome Type: Medium

2007:	0	2008:	0	2009:	0	2010:	0	2011:	0

Outcome Target
Cost savingsby utilization of in-state animal feeds

Outcome Type: Medium

2007:	0	2008:	0	2009:	0	2010:	0	2011:	0

Outcome Target
Number of producers utilizing recommended practices for agronomic and horticulture crops.

Outcome Type: Short

2007:	850	2008:	900	2009:	950	2010:	1000	2011:	1050

Outcome Target
Number of new crop and animal markets identified and utilized.

Outcome Type: Short

2007:	50	2008:	55	2009:	60	2010:	65	2011:	70

Outcome Target
Magnitude of in-state inputs used for plant and animal production

Outcome Type: Short

2007:	0	2008:	0	2009:	0	2010:	0	2011:	0

Outcome Target
Number of golf courses using recommended turfgrass cultivars and management practices.

Outcome Type: Short

2007:	10	2008:	12	2009:	15	2010:	17	2011:	20

Outcome Target
Number of new products and new uses of traditional products available for markets.

Outcome Type: Short

2007:	2	2008:	2	2009:	2	2010:	2	2011:	2

20. External factors which may affect outcomes

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

Description

Alaska is at the northern boundary of the climate change envelope. Many climate-oriented scientists agree, and there is some preliminary evidence, that the region will be the first to see impacts of climate change and will perhaps see the greatest changes. The impact of this change on northern agriculture is still unknown, but will likely influence the outcomes of agriculture research in the next five years. These

influences may include drought and other weather extremes, choice of plant and animal species that will be economically feasible to produce, and very possibly changes in public policy and government regulations in response to climate change. Examples of government policy changes could be effects on land use policies resulting from drought and water use by farmers. We will address these potential changes with supplements to our current plan of work as events dictate.

21. Evaluation studies planned

- Before-After (before and after program)
- During (during program)

Description

Products will include identification of improved production practices for plants (forages, turfgrass, grains, potatoes, vegetables, greenhouse and nursery plants, alternative crops, and forest products) and animals (traditional livestock, muskox, reindeer, elk, and bison). Dissemination methods will include utilizing the CRIS reporting system, peer reviewed publications, extension publications and workshops, grants and contracts that leverage formula funds, and impact statements/success stories.

22. Data Collection Methods

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

Description

Any of the above methods may be used to collect data on future projects dependent on the appropriateness of the data needed and the type of research project involved. (deb)

1. Name of the Planned Program

High Latitude Soils- AFES

2. Program knowledge areas

- 122 20% Management and Control of Forest and Range Fires
- 123 20% Management and Sustainability of Forest Resources
- 125 20% Agroforestry
- 102 20% Soil, Plant, Water, Nutrient Relationships
- 104 20% Protect Soil from Harmful Effects of Natural Elements

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

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

5. Brief summary about Planned Program

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. AFES operate soil laboratories in Alaska and will remain one of the major sources of information about Alaska soils. Under current Alaska climate variability, cold soils are experiencing significant changes that are in turn causing changes in natural and managed ecosystems.

6. Situation and priorities

The Arctic and Subarctic zones are expected to sustain the greatest impact in the wake of global climate change. In view of the vast acreage in Alaska and the potentially high carbon storage capacity in the boreal forest, an understanding of black spruce-dominated sites is important for both ecological modeling and for land management. Global climate change may result in warmer and dryer conditions in boreal forest regions. In 2004, forest fires destroyed the largest expanse of forest in 50 years. The impact of recent and future fires on boreal forest soil carbon bioavailability will require studies that will describe and model soil respiration following these fires.Additionally Alaska is known for its vast deposits of petroleum and mineral products. Extraction of these products will continue to impact soil resources and the habitat those resources support. SNRAS/AFES soils research programs have provided new knowledge in each of these priority areas over the past 30 years with potential development of ANWR, the proposed Gas-Pipeline. And the Pebble Mine to name a few, additional soils research will be required to ensure sound management of Alaska’s soil resoures.

7. Assumptions made for the Program

SNRAS/AFES will maintain programs in soil science 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 in the boreal forest of interior Alaska.
Resource extraction of petroleum and mineral will continue and without proper management will impact Alaska’s soil resources in a negative way .
While agriculture is not predicted to be a key economic force in Alaska farming, at some level will continue and will require new knowledge of soil resources and their role in providing nutrients, water, and structure for good production and environmental protection .

8. Ultimate goal(s) of this Program

Soil Research at SNRAS/AFES will have as a long-term goal, the development of a knowledge base that will address global climate change, resource extraction impacts on soil resources, and interactions between global warming, wildland fire, and soil carbon bioavailability. The Agricultural and Forestry Experiment Station's work in the soils area will focus on the following topics:
Soil properties as they relate to soil quality, ability to resist and recover from disturbance, and soil productivity .
Origin, formation, and classification of high-latitude soils.
Plant nutrition and soil fertility .
Permafrost soil characteristics, limitations, and potential uses .
Soil management, land reclamation, and remediation of contaminated soils .
Soil responses to climate change .
Soil biology and processes of boreal ecosystems in a management context .
Long-term soil data

9. Scope of Program

- In-State Research
- Multistate Research

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	4.9	0.0
2008	0.0	0.0	4.9	0.0
2009	0.0	0.0	5.4	0.0
2010	0.0	0.0	5.4	0.0
2011	0.0	0.0	5.4	0.0

Outputs for the Program

13. Activity (What will be done?)

High latitude soil research over the next five years will center on the following research topics and activities:
Characterization of black spruce forest soils in boreal regions of Alaska in terms of the organic carbon pool and relationship with forest management practices. The Arctic and Subarctic zones are expected to sustain the greatest impact in the wake of global climate change. Because of the vast acreage in Alaska and the potentially high C storage capacity in the boreal forest zone, an understanding of black spruce dominated sites is important for both ecological modeling and for land management.
Study soil carbon balance and nitrogen dynamics following disturbance by wildfire and logging in Interior Alaska. Evaluate whether and how wildfire changes the quality of organic matter remaining at the soil surface.
Soil respiration following wildfire in lowland black spruce forests, in upland black spruce and mixed hardwood forests.
Evaluate relationship between local climate and soil carbon balance.
Evaluate effects of agronomic management practices (fertility, tillage, etc.) on soil carbon levels. Yield and quality of barley and bromegrass will be evaluated as affected by zero/minimum tillage, to determine optimal N fertilizer rate, and cutting practice, and to determine soil carbon quantity and quality affected by different land management and tillage, and to quantify the potential mineralizable N in agricultural land under different management practices.

14. 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 (Best practices publications)	• Newsletters • Web sites • Other 1 (Peer reviewed journal articles) • Other 2 (Research bulletins)

15. Description of targeted audience

The audience for this program will include public and private resource managers, Native American Corporations, other faculty and researchers, and undergraduate and graduate students. 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, and 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. Soil, plant, water and nutrient relationships will be of interest to farmers and public agencies that assist farmers.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	40	60	0	0
2008	50	75	0	0
2009	50	75	0	0
2010	50	75	0	0
2011	50	75	0	0

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Development of a climate/soil model for boreal forest regions

2007: 1 2008: 0 2009: 1 2010: 0 2011: 0

Output Target

Development of a soil carbon profile for black spruce forest soils in interior Alaska

2007: 1 2008: 0 2009: 1 2010: 0 2011: 1

Output Target

Develop a model for relating post-fire organic duff depth to soil erosion and eventual stand regeneration.

2007: 0 2008: 1 2009: 0 2010: 0 2011: 0

Output Target

Publication of scientific journal articles and experiment station bulletins summarizing this research.

2007: 5 2008: 5 2009: 6 2010: 6 2011: 6

Output Target

Database listing of development limitations related to soil resources and soil quality.

2007: 150 2008: 1 2009: 1 2010: 1 2011: 1

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target
Number of public and private land managers using these models and publications.

Outcome Type: Short

2007:	5	2008:	5	2009:	5	2010:	5	2011:	5

Outcome Target
Number of land managers that change their practices in response to our research.

Outcome Type: Short

2007:	5	2008:	7	2009:	10	2010:	7	2011:	5

20. External factors which may affect outcomes

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

Description
Alaska is at the northern boundary of the climate change envelope. Many climate-oriented scientists agree, and there is some preliminary evidence, that the region will be the first to see impacts of climate change and will perhaps see the greatest changes. The impact of this change on northern agriculture is still unknown, but will likely influence the outcomes of agriculture research in the next five years. These influences may include drought and other weather extremes, choice of plant and animal species that will be economically feasible to produce, and very possibly changes in public policy and government regulations in response to climate change. Examples of government policy changes could be effects on land use policies resulting from drought and water use by farmers. We will address these potential changes with supplements to our current plan of work as events dictate.

21. Evaluation studies planned

- Before-After (before and after program)
- During (during program)

Description
Description: Fire represents a major environmental impact in northern forests. Climate change to warmer and drier conditions increases the probability of fire in the boreal forest of interior and southcentral Alaska. Our research will include evaluation of organic soil carbon and nitrogen balance before, during and after fire events. In the agricultural regions our planned research will investigate soil carbon and nitrogen before, during and after implementation of different management and tillage practices.
Products will include identification of improved management practices for land managers. Dissemination methods will include utilizing the CRIS reporting system, peer reviewed publications, extension publications and workshops, grants and contracts that leverage formula funds, and impact statements/success stories.

22. Data Collection Methods

- Sampling
- Whole population
- On-Site
- Structured
- Unstructured
- Observation
- Portfolio Reviews
- Tests
- Journals

Description

Any of the above methods may be used to collect data on future projects dependent on the appropriateness of the data needed and the type of research project involved.

1. Name of the Planned Program

Invasive Weeds, Noxious Plants and Pest Management

2. Program knowledge areas

- 213 20% Weeds Affecting Plants
- 214 5% Vertebrates, Mollusks, and Other Pests Affecting Plants
- 212 5% Pathogens and Nematodes Affecting Plants
- 216 70% Integrated Pest Management Systems

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

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

5. Brief summary about Planned Program

Some of the highest volume of questions Extension receives is about pest management and related topics. Extension provides pest management outreach for community forestry, home 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 Extension uses to assist its stakeholders when providing pest management information and educational outreach. Extension has operated a collaborative, statewide IPM education program since 1981. The integrated pest management program operates with a faculty oversight committee, two full time staff members and eight seasonal IPM technicians, placed in strategic urban and rural centers throughout the state. Each year, IPM staff and faculty serve as direct and accessible resources to bring IPM education to the public. Integrated pest management technicians provide research-based, practical information to help groups and individuals understand pests and choose appropriate control options. In addition to public outreach, IPM staff performs critical insect pest sampling and monitoring projects.
Extension's diverse pest management activities serve local green industry professionals by providing pest identification, training, monitoring, control options, and pesticide information. The program also assists a wide range of private, local, state and federal agencies. The Extension pest management team works closely with community volunteers, such as Master Gardeners and Community Tree Stewards, expanding the volume of the public provided pest management education.
Collaboration among Extension faculty and with other organizations supports Extension's diverse pest management projects that include IPM, Pesticide Safety Education Program, Western Region IPM (WRIPM), and the Western Plants Diagnostics Network (WPDN). This array of programs increases the number and diversity people Extension serves. In response to consistently demonstrated public demand for pest management education, and information and services Extension's pest management program educates people while promoting public safety, environmental responsibility and economic practicality.

6. Situation and priorities

Biological overview: Alaska's agriculture, forestry and horticulture sectors cover a large geographic region over a large range of climatic conditions. All regions are characterized by a short growing season (May-Sept.), cold soils, long summer day length and seasonal greenhouse and nursery production. Throughout the state, Alaska's wild lands are primarily pristine, with few established, imported pests Situational overview: Alaska imports about 95 percent of the food it consumes. Alaska has minimal agricultural infrastructure and virtually no processing capability. Alaska supports two major international air cargo and sea ports, and also hosts hundreds of thousands of out of state visitors annually. Alaska's borders offer limited pest control infrastructure outside of Anchorage. Exotic and imported pests may pose a serious threat to Alaska's natural resources. Efforts to prevent, monitor, identify, and provide control options for exotic species are part of an "early detection and rapid response" protocol, which is essential to Extension and its collaborative partners.Consumer Horticulture: Retail sales of plant materials contaminated with a variety of pests continue to challenge the state, particularly the agricultural and horticultural industries. Last year's potato late blight infestation has been blamed on the importation of Pacific Northwest grown tomatoes, an alternate host of late blight. IPM Pest Scouts are often the first defense against these invasive plant pests.Landscape: Trees, shrubs and other ornamentals introduced into Alaska have the potential to bring with them one or more pests. The industry relies upon Extension' s pest management expertise to support their pest management efforts.SubsistenceGardens: Home gardens and home food processing provide significant portions of many families' food needs in support of a subsistence lifestyle. There are few resources available to meet the pest management needs of this clientele outside Extension. The number of people practicing gardening is increasing annually statewide which is leading to increased demand for pest management information.Agronomic Crops: Increasing invasive weed issues, sporadic grasshopper infestations and increasing foliar diseases on cereal and grass hay crops will generate future pest management needs. Vegetable crops: Alaska's highest value vegetable crop is potatoes followed by carrots and lettuce. These and a few other major vegetable crops require the most agricultural pest management efforts. Recent potato late blight disease outbreaks have, for the first time, left Extension under-funded to support late blight pest scouting of potatoes in the Mat-Su Valley, Alaska's largest agricultural region.

7. Assumptions made for the Program

A1. Extension's reliance on soft-funding (grants) to support its pest management activities can affect the stability of the program. Faculty and staff member' diligent efforts have been instrumental in acquiring sufficient funding to support the program and will continue to do so in the immediate future.
A2. The demand for pest management information and education in Alaska will remain high.
A3. Alaska will remain a major importer of food and other agricultural and horticultural commodities, including forest products.
A4. Forest pest identification and monitoring will remain a high priority for UAF-Cooperative Extension Service (CES) and its State and Federal partners.
A5. Exotic or introduced pests will continue to enter Alaska at current or enhanced rates.
A6. The Alaska Pest Management Program will continue to be the first line of defense against exotic pest introductions.
A7. Local and regional pest management information networks will remain premier statewide resources.
A8. Pesticide education and certification will remain an important priority statewide.
A9. Alaska economy will remain a stable market economy.

8. Ultimate goal(s) of this Program

The efforts of Extension, in partnership with other agencies working in the state, will prevent Alaska from experiencing the economic, environmental and social impacts from invasive weeds and noxious plants that the lower 48 contiguous states have experienced.

9. Scope of Program

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

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	3.5	0.0	0.0	0.0
2008	3.0	0.0	0.0	0.0
2009	2.0	0.0	0.0	0.0
2010	2.0	0.0	0.0	0.0
2011	2.0	0.0	0.0	0.0

Outputs for the Program

13. Activity (What will be done?)

Will conduct group and one-on-one educational activities with specific sectors of the pest management industry, the agricultural and horticultural industry and the general public to provide pest identification and management information. Will use mass media techniques to distribute information, particularly the

Internet. Will monitor selected urban and rural communities for the presence of invasive weeds and noxious plants. Will work with partnering agencies to provide a coordinated response to invasive weeds, noxious plants and pest management.

14. 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 • Web sites • Other 1 (Publications and media outreach)

15. Description of targeted audience

Arborists Museums & science centers Botanical garden volunteers Military base personnel Child care centers Pest control operators Farmers Property managers Food service organizations Public health organizations Garden and plant associations Students and teachers in public and private schools Garden centers Recreational facilities Greenhouses, public and commercial Resort hotels and lodges Homeowner associations Rural residents Landscapers Local, state and federal parks Tree services and nurseries Master Gardeners Youth groups

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	12000	25000	100	500
2008	12500	25000	150	500
2009	13000	25000	200	500
2010	13500	25000	250	500
2011	14000	25000	300	500

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Output 1: Extension faculty and staff will offer invasive weeds, noxious plants and pest management workshops.

2007: 95 2008: 100 2009: 105 2010: 110 2011: 115

Output Target

Output 2: Extension faculty and staff will provide invasive weed, noxious plant and pest management information through one-on-one consultations and consultations with other organizations. These consultations will be measured in contact hours.

2007: 900 2008: 1000 2009: 1100 2010: 1200 2011: 1300

Output Target

Output 3: Extension will become the lead agency coordinating Alaska's response to invasive weeds, noxious plants and pest management.

2007: 0 2008: 0 2009: 1 2010: 0 2011: 0

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Outcome target 1: Increase knowledge of appropriate pest management practices for use in Alaska.

Outcome Type: Short

2007: 150 2008: 150 2009: 150 2010: 150 2011: 150

Outcome Target

Outcome target 2: People will understand and identify the optimum least-toxic pest management practices.

Outcome Type: Medium

2007: 25 2008: 25 2009: 25 2010: 25 2011: 25

Outcome Target

Outcome target 3: People will increase their ability to assess their current pest management practices.

Outcome Type: Medium

2007: 2 2008: 2 2009: 5 2010: 8 2011: 10

Outcome Target

Outcome target 4: Pesticide applicators will use the optimum least-toxic pest management practices.

Outcome Type: Long

2007: 2 2008: 2 2009: 2 2010: 2 2011: 2

Outcome Target

Outcome target 5: Decrease commercial crop losses from pests by X% over five years (target measured in 'percent').

Outcome Type: Medium

2007: 5 2008: 7 2009: 10 2010: 12 2011: 15

Outcome Target

Outcome target 6: Reduce major pest infestations on ornamentals, including urban trees/timber by 5% on a statewide basis over five years (target measured in 'percent').

Outcome Type: Medium

2007: 1 2008: 2 2009: 3 2010: 4 2011: 5

20. External factors which may affect outcomes

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

Description

{NO DATA ENTERED}

21. 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)
- 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

{NO DATA ENTERED}

22. Data Collection Methods

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

Description

{NO DATA ENTERED}

1. Name of the Planned Program

Management of Ecosystems- AFES

2. Program knowledge areas

- 803 10% Sociological and Technological Change Affecting Individuals, Fam
- 122 20% Management and Control of Forest and Range Fires
- 131 5% Alternative Uses of Land
- 121 10% Management of Range Resources
- 134 10% Outdoor Recreation
- 125 5% Agroforestry
- 136 20% Conservation of Biological Diversity
- 610 5% Domestic Policy Analysis
- 123 15% Management and Sustainability of Forest Resources

3. Program existence : Intermediate (One to five years)

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

5. Brief summary about Planned Program

Alaskans live in an environment, the circumpolar north, 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. AFES will play a pivotal role in teaching and providing information about management of Alaskan and northern ecosystems. 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 ethnic botanicals. Recreation opportunities will continue to be attractive for tourists and residents providing business opportunities for Alaskans but also requiring a closer attention to ecosystem management. Communities will increasingly depend on Alaska's natural resources for viable economic development to sustain their communities and promote family well being. Policy to sustain this growth that mirrors sociological and technological change will be critical.

6. Situation and priorities

Because of the large expanse of public land in Alaska, management of natural landscapes will be important into the indefinite future. SNRAS and AFES capabilities will assist in making this management efficient and effective. In 2004, the boreal forest of interior Alaska encountered wildland fires that burned more acreage than any fire in the past 50 years. AFES scientists are studying causes and effects of large burns. One proposed causative factor in these large fires is climate change. SNRAS and AFES scientists and appropriate partners 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 forests, agriculture, and resources management. State leaders plan to develop both renewable and non-renewable 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 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.

7. Assumptions made for the Program

The condition and productivity of Alaska's forest and wildland 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 • Enhance product production and use • Encourage sustainable economic development The teams we have and will assemble include scientists in key program knowledge areas in forestry, range, recreation, and policy and community development. Funding is secure and is increasing through competitive grants and

community, state and federal support. Outreach and education are a part of AFES's mission of applied research to assist clients in sustainable use of natural resources and ecosystem management.

8. 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. Natural resource management leading to: •
Diversity in undeveloped areas
Long-term monitoring programs
Data management system to support sustainable ecosystems and communities
Sustainable community growth

9. Scope of Program

- In-State Research
- Multistate Research

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	3.6	0.0
2008	0.0	0.0	3.6	0.0
2009	0.0	0.0	4.5	0.0
2010	0.0	0.0	4.5	0.0
2011	0.0	0.0	5.0	0.0

Outputs for the Program

13. Activity (What will be done?)

Research and outreach strategies will include a data base and data management system necessary for:
Forest Stand Characterization and Growth and Yield for the Alaska Northern Forest.
Post Fire Duff Information: Using remote sensing to investigate landscape fire interactions in black spruce ecosystems. The Normalized Burn Ratio is routinely applied on Alaska national lands to generate burn severity maps. Preliminary research shows to relationship between the Normalized Burn Ration and tree regeneration 19 years later. Post-fire duff depth information is critical in estimating impacts such as soil erosion, plant regeneration.
Long-term Ecosystem monitoring and GIS Modeling of the Taiga Forest Dynamics. This project will determine the influcen of primary and secondary plant chemistry from leaf and root tissue and the influence of the bryophyte communities on nutrient element supply for tree growth. Researchers will develop a computer model on the functional aspects of forest ecosystem dynamics at a broad landscape scale in Interior Alaska.
Database and data management system
Models depicting fire disturbance and climate change
Program to provide land-based data to correlate with remotely sensed images
Rural Communities and public lands in the West: Impacts and Alternatives. This multistate project seeks to provide scholarship-based lanalysis of public land use alternatives with a focus on local social and economic impacts. It will assess private property rights in common law and state law related to federal agencies ability to limit private conduct that may negatively impact federal land management.
Invasive species. Sweetclover is under investigation, as well as other exotic plant species which may be a result of climate

warming.

14. 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 (Best practices publications)	• Public Service Announcement • Newsletters • Web sites • Other 1 (Peer reviewed journals) • Other 2 (Research bulletins)

15. Description of targeted audience

The target audiences include producers and consumers of agricultural and forestry products, including communities and small business entrepreneurs, users of land and water resources, individuals and groups concerned about the quality of the Alaska environment, and public resource agencies. Our efforts will be directed toward environmentally and economically sustainable development and conservation of our natural resources that will benefit all citizens. In 2005, we met with the following stakeholders to discuss research priorities for this program:
Statewide Board of Advisors
Alaska Forest Association
Society of American Foresters
Alaska Farm Bureau
Alaska Northern Forest Cooperative

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	300	1500	0	0
2008	350	2000	0	0
2009	400	2500	0	0
2010	450	3000	0	0
2011	500	0	0	0

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Identify agricultural and forestry management practices that minimize environmental risks

2007: 3 2008: 3 2009: 3 2010: 3 2011: 3

Output Target

Models developed

2007: 5 2008: 0 2009: 5 2010: 0 2011: 5

Output Target

Databases for land resources planning, policy, and law as it relates to human activity and annual updates for tourism.

2007: 3 2008: 0 2009: 0 2010: 0 2011: 0

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Changes in land-use patterns that will support sustainable development

Outcome Type: Short

2007: 1 2008: 2 2009: 3 2010: 4 2011: 5

Outcome Target

Adoption of models for ecosystem management.

Outcome Type: Short

2007: 1 2008: 2 2009: 3 2010: 4 2011: 5

Outcome Target

Regulatory agency and private sector adoption of soil and wetlands criteria for Alaska

Outcome Type: Short

2007: 0 2008: 0 2009: 0 2010: 0 2011: 0

Outcome Target

Reduce instances of surface water contamination related to resource development

Outcome Type: Short

2007: 0 2008: 0 2009: 0 2010: 0 2011: 0

Outcome Target

Adoption of criteria for effective conflict resolution

Outcome Type: Short

2007: 2 2008: 3 2009: 4 2010: 5 2011: 6

20. External factors which may affect outcomes

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

Description

Alaska lies at the northern boundary of the climate change envelope. Many climate-oriented scientists agree, and there is some preliminary evidence, that the region will be the first to see impacts of climate change and will perhaps see the greatest changes. The impact of this change on northern forests is still unknown, but will likely influence the outcomes of forestry research in the next five years. These outcomes may be influenced by drought and other weather extremes, by resulting wildfires, and by effects on the very large pool of carbon stored in forest soils. Wildland fires will likely impact land-use patterns and policies on federal, state, and native corporation lands.

21. Evaluation studies planned

- Before-After (before and after program)
- During (during program)

Description

Specific issues related to natural resources development and potential impact on environmental health will be identified and addressed through research as resources allow. Measurable outcomes of research efforts include success in peer reviewed publication and dissemination of findings, utilization of the CRIS reporting system, leveraging formula funds through federal, state, and private grants, and through impact/success stories.

22. Data Collection Methods

- Sampling
- Whole population
- Structured
- Unstructured
- Case Study
- Observation
- Portfolio Reviews
- Tests
- Journals

Description

Any of the above methods may be used to collect data on future projects dependent on the appropriateness of the data needed and the type of research project involved.

1. Name of the Planned Program

Natural Resource Stewardship

2. Program knowledge areas

- 123 15% Management and Sustainability of Forest Resources
- 131 10% Alternative Uses of Land
- 122 15% Management and Control of Forest and Range Fires
- 608 10% Community Resource Planning and Development
- 112 20% Watershed Protection and Management
- 605 10% Natural Resource and Environmental Economics
- 134 10% Outdoor Recreation
- 111 10% Conservation and Efficient Use of Water

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

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

5. Brief summary about Planned Program

The Natural Resource Stewardship and Rural Development program will address stakeholders' need for unbiased, science based information about natural resource issues in forestry, mining, water and rural communities. Much of Alaska's natural resource wealth is located in rural areas, but urban populations have an impact on natural resource issues, e.g., forest resources and essential water resources. Many urban Alaskans employment is directly or indirectly linked to natural resources.

Extension will routinely identify emerging natural resource issues and with its partners will develop strategies to provide stakeholders with non-biased science based information to assist them in understanding the issue and make informed decisions. The stakeholders are not a static group and will change as natural resource issues change. Also, stakeholders' preferences for information resources vary by individual and issue. Extension and its partners will determine early in the process the best method to provide stakeholders with information resources. Programming in natural resources and rural development will provide basic skill training in natural resource management and be presented in formats determined to meet the learners' needs and learning styles.
Extension will partner with government agencies, other land grant institutions, and other units of the University of Alaska, external funding sources and stakeholder groups to develop Extension programs addressing emerging natural resources issues. These partnerships may be inter-organizational memoranda of understanding or agreement. They may be integrated activities within the University of Alaska, or they may be multi-state projects with other land grant institutions. Partnerships with external funding sources will be aggressively sought to support the program.
Stakeholders will also be provided with information and skill training to become actively and positively engaged in public process on natural resource issues. Many rural Alaskans lack education and experience in the public processes that can result in emotional, polarized meetings that may lead to long-term community tension. Extension and its partners will provide stakeholders with the knowledge to address critical natural resource matters from an informed perspective, so their views will be clear and understood by decision-makers. Extension programming will be presented in culturally relevant manner. As Extension, its partners and stakeholders become well acquainted, Extension and its partners will become more trusted resources and stakeholders will be more likely to turn to Extension for future assistance.
Alaska youth, especially rural youth, will receive skill training in natural resource management as part of this program. The training will be offered in a variety of venues including traditional 4-H projects; summer camps, and workforce training projects. The long-term goal of the youth projects is to increase the number of young Alaskans who pursue natural resource management related careers.

6. Situation and priorities

Alaska is a vast geographic area (375 million acres) rich in natural resources with great diversity in land form, forest resources, mineral and energy resources, water resources and human culture. Most of Alaska's lands are in public ownership. Federal lands make up 66% of Alaska's total land.
Alaska federal land management policies are set by national priorities which may conflict with Alaskan interests.
44 million acres of Alaska's lands are private lands owned by Alaska Native Regional and Village Corporations wholly owned by Alaska Natives and use of the resources on them is tightly controlled.
Many Native Corporation lands are primarily used by Native Alaskan shareholders for subsistence activities.
The State of Alaska retains subsurface ownership of all lands deeded to it at statehood, even when those lands are sold as

private property.
Less than 1% of Alaska's total land mass is in private ownership.
Management and use of Alaska land is often weighed towards interests other than those of local residents.
There are enormous stretches of Alaska with no residential population.
Alaska's economy is similar to an emerging colonial economy heavily reliant on natural resource extraction with limited secondary processing in state.
Tourism is a growing economic sector that promotes a pristine environment and diverse cultures.
Most of Alaska's largest tourism businesses are owned and operated by out of state businesses.
Many Alaskans are actively involved in tourist based small businesses.
Long time Alaskans often refer to the development of the oil pipeline a turning point in Alaska's demography, economy, social structure, and land use.
In 1970 Alaska Natives comprised 21% of the population; today they are only 11% of the population.
The majority of Alaskans are urbanites living in Anchorage, Fairbanks and Juneau.
As Alaska matures there will be changes in the State's demographics, economy, social structure and land use.
The scope of the issues addressed in this program are larger than any one organization 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.
The natural resources program will provide information for stakeholders on issues related to forest resources, mineral and non-petroleum energy resources, water resources and rural communities; provide skill training in topics such as wood 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 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 communities.
The priorities of natural resource programming will be to reflect stakeholders' interests.

7. Assumptions made for the Program

Alaska's natural resources have been inventoried to various degrees.
Forest resources managed by the National Forest Service in the Tongass and Chugach forests have been extensively studied.
Many remote forests in southeast Alaska have been poorly studied.
Much of the science needed by Extension provide natural resources skill training and to provide needed public information resources is available.
There are a number of qualified technical resources for Extension: UAF Agriculture and Forestry Experiment Station (AFES), the US Geologic Survey, US Bureau of Land Management, National Park Service, US Forest Service, Alaska Department of Natural Resources.
UAF AFES and Geophysical Institute faculty and staff have conducted extensive research regarding global climatic change, disturbed site reclamation, managing boreal forests, and managing change in rural communities.
UAF Rasmussen Library has an extensive Alaska section with many one of a kind research reports on Alaska's natural resources.
University of Alaska Anchorage Consortium Library is a new facility that combines the research of many federal and state natural resource management agencies in one facility. It is assumed that these units will continue research of Alaska's natural resources and that the research findings will be readily available.
Demand for Alaska's forest resources is low due to foreign competition.
As foreign forest resources become scarce the demand to Alaska forest resources will increase. Within Alaska the knowledge base and manufacturing framework for a forest products industry is high.
There will continue to be divisive conflicts regarding forest resource harvesting on federal lands, less of this conflict on state lands, and little conflict regarding forest resource harvesting on Native corporation lands and other private lands.
Interest in local wood energy projects will increase.
Rural communities will increasingly look at nearby forest resources as economic and personal use needs.
World markets for mineral resources have spurred mineral exploration and mine development in Alaska.
State and federal laws and regulations add cost to mineral extraction requiring high prices to support large capital investments and infrastructure development needed to support modern mines.
Assuming continued high value for Alaska's mineral resources.
Resource extraction and population growth will affect Alaska's water resources.
Assuming Alaskans and US population will place a high value on maintaining Alaska's water resources.
The value of maintaining water resources is a cost against utilization of forest and mineral resources.
Stakeholders are assumed to have transient interest in natural resource management and development.
Natural resources extraction plans will create local interest in the issue.
Groups are polarized related to the use of Alaska natural resources.
Extension will establish itself as a clearinghouse of non-biased, research-based, consumer-friendly information for stakeholder.

The success of this program will depend on the ability of faculty and staff to secure external funds.

8. Ultimate goal(s) of this Program

Create PartnershipsCreate and develop long term partnerships with government agencies, other land grant institutions, and other units of the University of Alaska system, external funding sources and stakeholder groups to develop unbiased information regarding contemporary natural resource issues affecting stakeholders.
Provide Infomation and Basic SkillsAssist stakeholders in making informed decisions regarding utilization of valued natural resources (forest resources, mineral resources, water resources), and rural communities by providing extension information regarding those resources; and, provide stakeholders with basic skills to engage them in natural resource assessment, management and use.
Change Stakeholder BehaviorStakeholders will seek information on natural resource issues of significance to them from Extension and it's partners who will have "just in time" science based information available for those stakeholders resulting in better informed and more positively engaged stakeholders; and, more Alaska youth will receive basic natural resource skill training for early entry into natural resource management jobs, and will choose careers managing Alaska's natural resources.

9. Scope of Program

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

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	3.0	0.0	1.0	0.0
2008	3.0	0.0	1.0	0.0
2009	4.0	0.0	2.0	0.0
2010	4.0	0.0	2.0	0.0
2011	4.0	0.0	2.0	0.0

Outputs for the Program

13. Activity (What will be done?)

Develop integrated and/or multi-state projects concerning natural resources stewardship goals 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 Extension 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 Extension 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.
Facilitated discussions and other meetings that address stakeholder needs in or near their communities.
Develop, conduct and review 4-H 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, use and/or protection jobs.
Develop, deliver, facilitate and evaluate natural resource stewardship informational discussions with non-stakeholder majority urban populations to increase their awareness of natural resource issues and the values and needs of stakeholders relative to natural resource use, management and protection.
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.

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

Extension	
Direct Methods	**Indirect Methods**
• Workshop • Group Discussion • One-on-One Intervention • Demonstrations • Other 1 (Youth natural resource camps)	• Newsletters • Web sites

15. Description of targeted audience

Stakeholders directly impacted by contemporary natural resource issues related to forest resources, mining resources, water resources and rural communities.
Rural Alaskans.
Young adults from rural Alaska wanting entry level skills need for employment in natural Resources businesses, agencies or organizations.
Alaska youth aged 9–18 interested in natural resources.
Interested Alaskans not directly affected by contemporary natural resource issues related to forest resources, mining resources, water resources and rural communities.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	200	500	225	675
2008	225	600	300	800
2009	250	750	400	900
2010	300	875	450	1000
2011	350	1000	500	1200

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Output 1: Develop formal partnerships with other land grant institutions, government agencies, stakeholder groups and credible, research based non government organizations that provide stakeholders with research based extension education on natural resource issues that impact stakeholders.

2007: 5 2008: 8 2009: 12 2010: 15 2011: 16

Output Target

Output 2: Develop and deliver public issues education workshops for stakeholders on locally relevant natural resources issues that impact stakeholders.

2007: 5 2008: 10 2009: 20 2010: 25 2011: 30

Output Target

Output 3: Develop informal partnerships with land grant institutions, government agencies, stakeholder groups and credible, research-based non-government organizations to deliver posters, power-point presentations, and graphic based presentations on local natural resource issues that impact stakeholders.

2007: 4 2008: 7 2009: 10 2010: 12 2011: 15

Output Target

Output 4: Develop, review, and revise a web site to be the electronic portal for UAF Extension information on natural resources stewardship matters of concern to stakeholders

2007: 1 2008: 1 2009: 1 2010: 1 2011: 1

Output Target

Output 5: Develop new multi-state relationships with other land grant institutions to identify natural resource issues that impact stakeholders.

2007: 1 2008: 2 2009: 4 2010: 5 2011: 4

Output Target

Output 6: Develop integrated research-extension activities with University of Alaska Fairbanks faculty and faculty at other land grant institutions that provide information resources related to natural resource issues impacting stakeholders.

2007: 1 2008: 2 2009: 2 2010: 3 2011: 2

Output Target

Output 7: Conduct at least two formal needs assessments per year of natural resource stakeholder groups

2007: 2 2008: 2 2009: 2 2010: 2 2011: 2

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Outcome 1: As a result of participating in a workforce skill training projects for young adults from rural Alaska using a natural resource stewardship context, participants will obtain employment in the natural resource field.

Outcome Type: Medium

2007:	15	2008:	25	2009:	35	2010:	45	2011:	50

Outcome Target

Outcome 2: By working with UAF School of Natural Resources, College of Rural and Community Development and other University of Alaska units the number of young Alaskans recruited and trained in natural resource fields will result in an increase in the number of students who earn occupational endorsements and certificates in natural resource fields.

Outcome Type: Medium

2007:	15	2008:	20	2009:	25	2010:	30	2011:	35

Outcome Target

Outcome 3: Work with UAF School of Natural Resources, College of Rural and Community Development and other University of Alaska will increase the number of rural Alaskans who graduate with undergraduate degrees in natural resource fields.

Outcome Type: Medium

2007:	4	2008:	5	2009:	10	2010:	15	2011:	20

Outcome Target

Outcome target 4: Youth who participate in 4-H youth development natural resource stewardship projects will gain natural resource career job skills.

Outcome Type: Medium

2007:	25	2008:	30	2009:	45	2010:	50	2011:	55

20. External factors which may affect outcomes

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

Description

{NO DATA ENTERED}

21. Evaluation studies planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparison between locales where the program operates and sites without program intervention

Description

{NO DATA ENTERED}

22. Data Collection Methods

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

Description
{NO DATA ENTERED}

1. Name of the Planned Program

Natural Resource Use and Allocation- AFES

2. Program knowledge areas

- 134 25% Outdoor Recreation
- 605 25% Natural Resource and Environmental Economics
- 608 25% Community Resource Planning and Development
- 610 25% Domestic Policy Analysis

3. Program existence : Intermediate (One to five years)

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

5. Brief summary about Planned Program

Alaska is a state with an urban core and rural periphery. Major resources development activities are 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. Rural communities are lacking in even the most basic amenities such as adequate sanitation and efficient energy sources that would attract appropriate resource developers. As a result, these communities depend on resources for subsistence. 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. Research priorities will be determined through joint collaboration with stakeholders in communities, industry, and state and federal agencies. Our Board of Advisors which has two members serving rural communities and Alaska native populations will assist in obtaining input from those that have been underserved in the past. The Alaska Cooperative Extension will assist in establishment of listening sessions in rural centers around the state.

6. Situation and priorities

This program recognizes and provides knowledge and experience that supplements other research units within the University of Alaska Fairbanks. Schools of Management, Fisheries and Ocean Sciences, and the College of Engineering and Mines deal with the actual harvest and extraction industries. SNRAS/AFES supplements these programs by 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 resources management.In the area of rural community culture and economic development community and resource managers lack economic data and analysis which can help guide decision-making. Regional economic models will be developed of the reindeer and groundfish industries.We will continue research in environmental law and policy. Federal land managers are required to act within a prescribed statutory and regulatory framework that is supposed to guide their decision-making. The purpose of this work is to identify situations in which existing laws with conflicting purposes are supposed to be implemented, and try to reconcile how those laws may coexist.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. Is this because these techniques are the most effective, or is it because they are just the most familiar? This project will increase the level of awareness of new public involvement techniques as well as their advantages and disadvantages.

7. Assumptions made for the Program

Resource management in Alaska will continue to be constrained by needs to fulfill public expectations and perceptions
Follow processes that are legally required and meet the substantive requirement of state and federal law and policy
Costs of harvesting Alaska resources will continue to be high and need to be addressed in context of global markets
Outdoor and wildland recreation and nature-based tourism will continue to expand and become a relatively large part of the Alaska economy and social fabric

8. Ultimate goal(s) of this Program

Ultimate Goals for this program include:
Develo regional economic models for rural 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
Determine the economic, managerial, and ecological aspects of outdoor recreation management

9. Scope of Program

- In-State Research

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	1.0	0.0	0.8	0.0
2008	0.0	0.0	1.7	0.0
2009	0.0	0.0	1.7	0.0
2010	0.0	0.0	1.7	0.0
2011	0.0	0.0	2.6	0.0

Outputs for the Program

13. Activity (What will be done?)

Products will center on providing research supported information (models) to agency and government decision makers 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. Measurable outcomes will include peer reviewed publications, lay publications, village business/development plans, and citizen participation.

14. 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	• Newsletters • Web sites • Other 1 (peer reviewed journals) • Other 2 (Research bulletins)

15. 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 underserved rural populations within the limit of resources available.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	315	500	0	0
2008	350	500	0	0
2009	375	500	0	0
2010	400	500	0	0
2011	450	500	0	0

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Number of communities that adapt economic models which provide information that enables leaders to assess the direction they wish to take in economic development.

2007: 6 2008: 6 2009: 6 2010: 6 2011: 6

Output Target

Attendance and participation in various discussions related to use of natural resources in rural Alaska.

2007: 150 2008: 300 2009: 350 2010: 400 2011: 450

Output Target

Identification of projected policy changes on communities and families

2007: 0 2008: 0 2009: 0 2010: 0 2011: 0

Output Target

Number of business or development plans implemented

2007: 0 2008: 0 2009: 0 2010: 0 2011: 0

Output Target

surveys

2007: 1 2008: 2 2009: 2 2010: 2 2011: 2

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

New policy/regulations directed toward appropriate resources development

Outcome Type: Short

2007:	0	2008:	0	2009:	0	2010:	0	2011:	0

Outcome Target
Increased local businesses and job opportunities in rural communities and villages

Outcome Type: Short

2007:	2	2008:	2	2009:	2	2010:	2	2011:	2

Outcome Target
Energy-efficient technology adopted in rural communities

Outcome Type: Medium

2007:	2	2008:	2	2009:	2	2010:	2	2011:	2

Outcome Target
Increased employment opportunities

Outcome Type: Short

2007:	0	2008:	0	2009:	0	2010:	0	2011:	0

Outcome Target
Increased recreational use.

Outcome Type: Short

2007:	0	2008:	0	2009:	0	2010:	0	2011:	0

20. External factors which may affect outcomes

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

Description
External factors that could impact natural resource use and allocation include changes in state and federal policy that would change the economic climate in Alaska. For example, current dialogue in the state centers around oil and gas development. At the economic policy level, opening the Arctic National Wildlife Reserve to oil development and building of a gas pipeline would have a significant effect on both urban and rural economies and will alter research plans related to resources planning, market value of Alaska's resources, and conflicts among resource users.

21. Evaluation studies planned

- 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

Description
Products will center on providing research supported information (models) to agency and government decision makers 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. Measurable outcomes will include peer reviewed publications, lay publications, village business/development plans, and citizen participation.

22. Data Collection Methods

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

Description

Any of the above methods may be used to collect data on future projects dependent on the appropriateness of the data needed and the type of research project involved.

1. Name of the Planned Program

Sustainable Individuals, Families, and Communities

2. Program knowledge areas

- 802 15% Human Development and Family Well-Being
- 804 10% Human Environmental Issues Concerning Apparel, Textiles, and Res
- 504 20% Home and Commercial Food Service
- 703 15% Nutrition Education and Behavior
- 805 5% Community Institutions, Health, and Social Services
- 724 20% Healthy Lifestyle
- 502 5% New and Improved Food Products
- 801 10% Individual and Family Resource Management

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

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

5. Brief summary about Planned Program

Extension's Sustainable Individuals, Families and Communities Program includes five areas:
1) Health, Nutrition and Foods includes areas such as 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 includes areas such as lifespan development, transitions, grief and loss, and caregiver training.
3) Consumer Resource Management includes areas such as estate planning, budgeting, transitions, financial management, time management, stress reduction.
4) Homes and Energy include areas such as indoor air quality, home maintenance and repair, building science and energy use.
5) Emergency Preparedness includes areas such as families and communities responding to natural and manmade disasters.

6. Situation and priorities

Alaska is a large geographic area (586,000 square miles) with numerous rural communities which have small populations, many only accessible by airplane and boat, and a few urban communities that include half of the total population.
An increasing number of Alaskans are overweight or obese and are at high risk for chronic disease associated with being overweight.
Alaskans' health can be improved through healthier lifestyles which include diet, exercise and caring for one another.
Alaska has an abundance of nutritious seasonal, wild and homegrown foods for which appropriate food preservation methods and food product development are important to healthy diets and possible sources of income.
The Sustainable Individuals, Families, and Communities program will engage in community participatory research that enables people to cope with the changing demands of Alaskans.
Individuals and families face a myriad of stresses in today's rapidly changing fast paced world that affect their lives.
Some of the priority issues affecting individuals and families include relationships, such as parenting, marriage, communication; child care, elder care provider, caregiver issues; family finances; and health issues.
Extension educators can offer research based information to help individuals and families learn practical, low cost ways to strengthen their skills and build resiliency through the life span transitions like parenting, grief and loss, military deployment, divorce, empty nest, and retirement.
The cost of living is high in Alaska.
Rising property taxes has caused an increased burden on family budgets.
Lack of employment opportunities in rural areas results in an income divide between rural and urban areas.
Families in rural areas tend to be larger and younger which depresses rural incomes compared to urban incomes.
Southeast Alaska has lost jobs while the Mat-Su region has gained jobs.
There has been a 10-fold increase in the number of bankruptcies filed this year over previous years.
Housing costs are high in Alaska due to high labor and materials cost.
Alaska is negatively affected by increasing energy costs, but rural areas are especially hard hit.
Indoor air quality continues to be a problem with the length of time spent indoors during the long Alaskan winter months.
Improving the quality of shelter in Alaska's harsh environments is a very important element of Extension's service and information delivery.
Every community in Alaska is vulnerable to natural or human-caused disasters.
Each disaster that takes place is a local disaster.

Every Alaskan community is unique in potential disasters and level of preparedness.
Response time to disasters in Alaska may be greater than in the lower 48 states due to distances, weather, and small population.
The 9-11 disaster demonstrated Alaska's heavy dependence on air transportation. Disruption in air transportation isolates many rural communities accessible only by air.
Alaska is at the end of the supply line, particularly for food where 95 percent of Alaska's food is delivered by sea.

7. Assumptions made for the Program

Health, Nutrition and Food
Alaskans' health can be improved through healthier lifestyles which include how individuals and families eat, exercise and care for one another's health.
The variety, quantity, season and location of indigenous food resources necessitate preservation methods that expand their shelf life throughout the year.
Extension will remain a major researcher for Alaska specific food resources and new and improved food products.
The demand for information and education about healthier lifestyles will increase.

Human Development
Communities in Alaska are spread over a large geographic area and many are not connected to the road system, which makes transportation costly and difficult.
The content areas of Human Development can be taught via distance education; however the application of interpersonal skills is difficult to practice in such settings.

Consumer Resource Management
Alaska is one of the highest costs-of-living state in the US.
Food costs differ widely around the state.
Cost of heating oil and fuels will continue to rise.
Families are going to need consumer resource management education to avoid bankruptcy and to deal with the legalities if bankruptcy is imminent.
Limited financial and lack of a state Consumer Resource Management Specialist is a system problem.

Homes and Energy
Costs of energy and housing will continue to rise.
Maintenance of existing homes needs a higher priority.
Weatherization of existing homes is needed and is the best way to solve short term housing problems.
Good building science is the basis for all healthy, efficient, and durable housing.
Alaskans will continue to spend 90% of their time indoors.
Alaskans should have healthy, affordable housing.
Renewable energy will be used throughout Alaska.

Emergency Preparedness
There are likely to be emergencies of a substantial nature every year in Alaska.
In the event of a disaster, individuals and families need to be prepared to be on their own for at least three days and they will need to be resourceful.
Many Alaskans have the knowledge and skills to survive sheltering in place.
Preparing for evacuation may need to be targeted in addition to skills for sheltering in place for some individuals.
Local self-reliance needs to be encouraged.

8. Ultimate goal(s) of this Program

Extension's goal is to help people improve their lives through an educational process that applies knowledge to critical needs, issues, and opportunities.
Health, Nutrition and FoodThe educational programs that we bring to families and individuals will be designed to assist Alaskans make lifestyle changes to their improve health and quality of life.
Human DevelopmentThe goal is to educate people to strengthen communities and families and to address current and emerging issues within human development.
Consumer Resource ManagementThe goal is to provide Alaskans with the economic and financial understanding they need to function in a complex, global environment.
Homes and EnergyAlaskans should have healthy, affordable housing and the use of renewable energy will increase throughout

Alaska.
Emergency PreparednessExtension's emergency preparedness efforts will help communities become self-reliant during a disaster; help individuals to be more secure when sheltering in place or evacuating because of their emergency planning and preparedness; and Extension will strengthen its infrastructure to assist with disaster preparation, response and recovery in Alaskan communities.

9. Scope of Program

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

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	10.0	0.0	0.3	0.0
2008	10.0	0.0	0.3	0.0
2009	10.0	0.0	0.3	0.0
2010	10.0	0.0	0.3	0.0
2011	10.0	0.0	0.3	0.0

Outputs for the Program

13. Activity (What will be done?)

Conduct workshops and meetings
Deliver services
Develop products, curricula and resources
Provide training
Conduct consultations with clientele
Conduct needs assessments
Work with the media
Partner with other agencies and organizations
Write articles, publications and fact sheets
Facilitate events, activities, and teachable moments
Conduct research experiments.

14. 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)

15. Description of targeted audience

The potential audience of Sustainable Individuals, Families and Communities programming is all Alaskans. Individuals and groups targeted by programming include:
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
Human development and social work professionals
Food banks
Housing and energy authorities and organizations
Individuals or families experiencing life transitions like divorce, retirement, bankruptcy, etc.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	6900	70800	680	810
2008	7150	81400	690	970
2009	7350	82400	700	1020
2010	7500	82900	710	1080
2011	7750	83400	720	1130

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Output 1: Extension faculty and staff will offer workshops in a wide range of home economics and family and consumer science topics.

2007: 100 2008: 110 2009: 120 2010: 130 2011: 140

Output Target

Output 2: Extension district offices will offer or sponsor emergency preparedness workshops that teach individuals and communities how to be self-reliant during and immediately following a disaster.

2007: 0 2008: 0 2009: 0 2010: 0 2011: 0

Output Target

Output 3: Extension offices will have individualized and up-to-date office emergency plans and staff within the offices will participate in an annual review and update of the plans.

2007: 0 2008: 8 2009: 8 2010: 8 2011: 8

Output Target

Output 4: The number of individual and commercial renewable energy systems will increase by 500 percent over five years increasing the amount of “green” energy available to consumers.

2007: 350 2008: 700 2009: 900 2010: 1250 2011: 1750

Output Target

Output 5: The number of newly constructed homes using new radon-resistant construction techniques as a means to improve indoor air quality will increase.

2007: 0 2008: 50 2009: 55 2010: 60 2011: 0

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Outcome target 1: Participants in food preservation and food safety classes will improve their knowledge of food preservation and food safety practices.

Outcome Type: Short

2007: 130 2008: 150 2009: 160 2010: 190 2011: 190

Outcome Target

Outcome target 2: Participants in food preservation and food safety classes will improve their food preservation and food safety practices.

Outcome Type: Medium

2007: 80 2008: 90 2009: 95 2010: 95 2011: 95

Outcome Target

Outcome target 3: Participants in healthy physical lifestyle classes will increase their knowledge of healthy physical lifestyle choices after participating in the class.

Outcome Type: Short

2007: 260 2008: 310 2009: 310 2010: 310 2011: 310

Outcome Target

Outcome target 4: Participants in healthy physical lifestyle classes will adopt and maintain healthy physical lifestyle practices one year after participating in the classes.

Outcome Type: Medium

2007:	0	2008:	37	2009:	44	2010:	44	2011:	44

Outcome Target

Outcome target 5: Awareness of the importance of energy conservation will double over 2005 awareness levels over a five-year period.

Outcome Type: Medium

2007:	400	2008:	425	2009:	450	2010:	500	2011:	800

Outcome Target

Outcome target 6: One year after participating in an Extension healthy lifestyle class, participants will be practicing learned behaviors to help them achieve or maintain a socially and emotionally healthy lifestyle.

Outcome Type: Medium

2007:	0	2008:	40	2009:	50	2010:	55	2011:	55

Outcome Target

Outcome target 7: Participate in a parent education class will increase their knowledge of developmentally appropriate parenting practices

Outcome Type: Short

2007:	80	2008:	80	2009:	80	2010:	80	2011:	80

Outcome Target

Outcome target 8: Participants in a parent education class will increase their application of developmentally appropriate parenting practices.

Outcome Type: Medium

2007:	25	2008:	25	2009:	25	2010:	25	2011:	25

Outcome Target

Outcome target 9: Participants in a human relationships classes will increase their knowledge for appropriate human relationship skills.

Outcome Type: Short

2007:	15	2008:	15	2009:	15	2010:	15	2011:	15

Outcome Target

Outcome target 10: Participants in a human relationships classes will increase their application of appropriate human relationship practices.

Outcome Type: Medium

2007:	5	2008:	5	2009:	8	2010:	8	2011:	8

Outcome Target

Outcome target 11: As a result of receiving financial management training workshop participants will increase their knowledge of personal financial planning topics.

Outcome Type: Short

2007:	55	2008:	55	2009:	60	2010:	60	2011:	60

Outcome Target

Outcome target 12: Based upon information provided by Extension in financial management workshops, participants will access reliable resources for making sound financial management decisions.

Outcome Type: Medium

2007:	15	2008:	15	2009:	15	2010:	15	2011:	15

Outcome Target

Outcome target 13: Participants in financial management workshops will adopt improved financial management practices when making financial management decisions.

Outcome Type: Medium

2007:	5	2008:	5	2009:	5	2010:	5	2011:	5

Outcome Target

Outcome target 14: The energy efficiency of the Alaskan housing stock will increase by 5% over three years.

Outcome Type: Medium

2007:	0	2008:	5	2009:	5	2010:	5	2011:	0

Outcome Target

Outcome target 15: Awareness of the importance of renewable energy sources will increase by 20 percent per year over five years.

Outcome Type: Medium

2007:	20	2008:	20	2009:	20	2010:	20	2011:	20

20. External factors which may affect outcomes

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

Description

{NO DATA ENTERED}

21. 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

{NO DATA ENTERED}

22. Data Collection Methods

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

Description
{NO DATA ENTERED}

1. Name of the Planned Program

Youth Development

2. Program knowledge areas

- 607 5% Consumer Economics
- 806 90% Youth Development
- 801 5% Individual and Family Resource Management

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

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

5. Brief summary about Planned Program

One of two major approaches Extension will use to promote 4-H youth development is education with a focus on skills and knowledge targeting individual learners with the goals of developing competency in various knowledge areas. The content approach to 4-H follow Mission Mandates as set out by CSRESS. Content meaning information and experiences created by individuals, institutions, and technology to benefit audiences in venues that they value. The Mission areas are three-fold: Science, Engineering, and Technology – tied to agricultural and environmental issues; Healthy Lifestyles – tied to human health and well-being; and Citizenship – tied to the activities of people within institutions and government for the common good. Programs of the following types will be conducted across Alaska to achieve Extension's youth development goals: 4-H clubs, school enrichment programs, after school activities, and summer camps.
The contextual approach that will underlie 4-H youth development programming focuses on developmental needs targeting opportunities for youth transitioning from childhood to adulthood by meeting needs in positive ways. Context means using circumstances and conditions which surround an event or individual; the circumstances or settings which determine, specify, or clarify the meaning of an event. 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 Extension 4-H and youth development programming within this contextual framework that include generosity, belonging, independence, and mastery.

6. Situation and priorities

1) There are 101,027 youth in Alaska between and ages of 10 and 18 who could benefit from participating in 4-H youth development programming, but only about 11,000 per year are served by the program (Kids Count Alaska 2004 Data Book, ISER, UAA)
2) State and federal funding for Extension are projected to remain flat and not projected to keep pace with inflation.
3) It is unlikely that resources will be reallocated within Extension to increase support for 4-H youth development
5) The University of Alaska and University of Alaska Fairbanks strategic plans both promote workforce development as important goals
6) Alaska is facing increasing urbanization
7) Alaska Native populations are under increasing cultural stress.
8) The number of single parent households and two-working parent families continues to increase.
9) Military youth face long and multiple deployments of their parents and anxiety about deployment of their parents.
10) The number of youth who participate in 4-H youth development continues to decline as youth enter adolescence.
11) Extension has a relatively small 4-H workforce for a state one fifth the size of the continental US with limited and expensive transportation options between widely dispersed communities.
12) There is an extensive body of research that the Essential Elements of Youth Development promote the intellectual and behavioral development of youth.
13) A foundation of 4-H youth development is a two pronged approach of focusing on: Education - information and experiences (Content); and satisfying Developmental Needs in a positive way by involving the individual, community and society (Context).
14) Climate and geographic extremes in Alaska affect what programming 4-H can offer and how it can be offered.
15) Extension in Alaska lacks local funding partnerships that are common in most other states and this affect the level of local "ownership" of Extension programming.

7. Assumptions made for the Program

A1) When environments include sustained opportunities for young people to gain a sense of belonging, independence, mastery and generosity, youth can master skills to make positive life choices, effectively contribute to decision-making, act responsibly and productively influence their communities and beyond.
A2) On going and caring relationships are essential to positive development.

A3) The 4-H workforce relies on a research and knowledge-base of the competencies critical to 4-H youth development (4-H PRKC).
A4) 4-H can attract, develop and keep an outstanding and diverse 4-H workforce for years to come.
A5) 4-H youth development is a well respected and effective youth development program in Alaska.
A6) A successful 4-H youth development program is dependent on adequate number of competent & trained volunteers.
A7) The Alaska 4-H youth development program provides youth a unique and inclusive setting for individual life skill development and mastery of subject matter competencies through the interactions with caring adults (paid and volunteer)
A8) National Extension 4-H youth development initiatives are integrated into the Alaska state/district 4-H youth development efforts, including Children, Youth and Families at Risk (CYFAR), after school programs, youth/adult partnerships and others as they evolve.
A9) All 4-H staff have been trained in the Essential Elements of Youth Development and funds to provide training (travel, materials, publications) across the state are available.
A10) The 4-H youth development educators make the assumption that all leaders are using research based 4-H curriculum.
A11) Partnerships between University of Alaska System and University of Alaska Fairbanks Extension 4-H youth development faculty can provide two-way communications for youth, faculty and community partners to foster lifelong learning.
A12) Training for military installations will be developed with military youth development directors and done as needed by the state military liaison or the nearest district agent.
A13) 4-H districts will develop summer youth work programs for 15-18 year olds that stress teaching them good work habits based upon the 4-H curricula and supplemental materials that seem most pertinent to jobs in their district.
A14) The resources and staff necessary to establish a summer youth work program are available.
A15) Entrepreneurial skill training for youth that they can directly apply to start youth-based enterprises will be dependent upon finding adult leaders in districts that will be willing to oversee any new programming efforts.
A16) District agents will invest resources and time building collaborations with area youth programs and school programs to increase 4-H youth membership by 25 percent.
A18) New, non-traditional 4-H volunteers will be found to lead new clubs or programs in districts.
A19) Participants will learn through experiential learning events. Motivations will include scholarships, achievement of self-goals, state-wide travel opportunities, citizenship trips, leadership exchanges, etc.

8. Ultimate goal(s) of this Program

The ultimate goal of 4-H is the vision: 4-H… A world leader in developing youth to become productive citizens and catalysts for positive change to meet the needs of a diverse and changing society. Youth are given the opportunity for belonging, mastery, independence, and generosity through 4-H club and project participation.

9. Scope of Program

- In-State Extension

Inputs for the Program

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

11. Expending other then formula funds or state-matching funds : Yes

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

Year	Extension		Research	
	1862	1890	1862	1890
2007	9.0	0.0	0.0	0.0
2008	9.0	0.0	0.0	0.0
2009	9.0	0.0	0.0	0.0
2010	9.0	0.0	0.0	0.0
2011	9.0	0.0	0.0	0.0

Outputs for the Program

13. Activity (What will be done?)

Essential Elements: A new 4-H Volunteer Leaders Training Manual, CDROM and accompanying web-based tutorials that incorporate Essential Elements training will be created. Due to very significant transportation and access issues in Alaska, various methods of delivery will be developed including district workshops, the development of a CDROM, 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.
Youth Work Force Preparation: Many youth enter the workforce without the key skills needed to advance 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. Using already developed curricula, districts will offer workforce preparation training programs to aid in the development of employment skills of youth age 15 -18. Collaborations with local businesses and UA colleges will be created and strengthened in order to offer job shadowing, internships, and others.
Entrepreneurship: 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. The few models of success that have already been seen in Alaska will be a benchmark for additional programs to be developed. In conjunction with existing groups, (for example, Master Gardeners, 4-H gardening clubs, and local 4-H clubs), district agents can assist in promoting the ideals of youth-based enterprises through additional leader and junior leader trainings, providing enterprise opportunities, and by aiding in developing collaborations with outside organizations that can aid in the success of such enterprises.
Increase in 4-H members age 11-18 by 25 percent: Collaborations with local schools and other youth programs across the state will be made. Collaborations and new partnerships can lead to new volunteer opportunities for 11-18 year olds involving them in both traditional and new 4-H activities. Though there are many opportunities for youth of this age, a key to success in this program will be though developing cross-over collaborations with local schools, other youth programs, and area University of Alaska campuses.

14. 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

15. Description of targeted audience

4-H members grades 3–12 years old
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
Students grades 3 through high school
Community leaders
Federal and state agency representatives
Native corporations and tribal representatives
Youth serving organizations and their representatives
University of Alaska Fairbanks faculty

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	500	2000	11000	15000
2008	525	2100	11200	15500
2009	550	2200	11400	16000
2010	575	2300	11600	16500
2011	600	2400	11800	17000

17. (Standard Research Target) Number of Patents

Expected Patents

2007 : 0 2008 : 0 2009 : 0 2010 : 0 2011 : 0

18. Output measures

Output Target

Output 1: 4-H educators will develop a comprehensive curriculum to train leaders in the Essential Elements of Youth Development.

2007: 0 2008: 1 2009: 0 2010: 0 2011: 0

Output Target

Output 2: 4-H educators will train all 4-H volunteer leaders in the Essential Elements of Youth Development.

2007: 250 2008: 250 2009: 250 2010: 250 2011: 250

Output Target

Output 3: Extension will develop and implement at least three workforce skills projects for 15 to 18 year olds that stress good work habits.

2007: 3 2008: 3 2009: 3 2010: 3 2011: 3

Output Target

Output 4: Extension will use the 4-H club approach in at least three districts to implement an entrepreneurial skills training curriculum for youth that will train them in the skills they need to start their own youth-based businesses. After five years, at least 30 youth per year will be participating in the projects per year.

2007: 10 2008: 15 2009: 20 2010: 25 2011: 30

Output Target

Output 5: Increase the 4-H youth membership retention rate based upon the 2005 ES 237 Report by at least 5 percent per year over five years for each age cohort between the ages of 11 and 18 years old so that more youth have greater exposure to the benefits that accrue from participation in 4-H.

2007: 5 2008: 5 2009: 5 2010: 5 2011: 5

Output Target

Output 6: Extension will increase the number of 4-H programs by 5 percent per year that incorporate

CSREES initiatives in Science, technology and engineering; healthy lifestyles; and citizenship.

2007: 5 2008: 5 2009: 5 2010: 5 2011: 5

Output Target

Output 7: Increase the number of intra and inter-district educational and service collaborations by 5 percent per year.

2007: 5 2008: 5 2009: 5 2010: 5 2011: 5

Output Target

Output 8: Increase collaborations and partnerships by 5 percent per year with other organizations, agencies or entities (local, regional, state, federal) that have youth serving or youth related outcome objectives that impact Alaskan youth.

2007: 5 2008: 5 2009: 5 2010: 5 2011: 5

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Target

Outcome target 1: All faculty and staff with 4-H youth development responsibilities will be trained and understand the Essential Elements of Youth Development.

Outcome Type: Medium

2007: 9 2008: 9 2009: 9 2010: 9 2011: 9

Outcome Target

Outcome target 2: After receiving training in the Essential Elements of Youth Development, 4-H leaders will apply at least two of the Essential in their interactions with youth as part of 4-H programming such that 4-H educators will observe them using these approaches in leaders' activities.

Outcome Type: Medium

2007: 125 2008: 150 2009: 200 2010: 200 2011: 200

Outcome Target

Outcome target 3: Youth work skills projects for 15 to 18 year olds will improve participants' work skills.

Outcome Type: Medium

2007: 20 2008: 30 2009: 40 2010: 40 2011: 40

Outcome Target

Outcome target 4: Youth who participate in a youth entrepreneurial training project will try to start a youth-based business within three years.

Outcome Type: Medium

2007: 0 2008: 0 2009: 2 2010: 3 2011: 5

20. External factors which may affect outcomes

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

Description

{NO DATA ENTERED}

21. 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
- Comparison between locales where the program operates and sites without program intervention

Description

{NO DATA ENTERED}

22. Data Collection Methods

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

Description

{NO DATA ENTERED}