UNIVERSITY OF ALASKA FAIRBANKS

SCHOOL OF AGRICULTURE AND LAND RESOURCES MANAGEMENT
AGRICULTURAL AND FORESTRY EXPERIMENT STATION

PLAN OF WORK

Revision

OCTOBER 1, 2004 – SEPTEMBER 30, 2006

Certification Signature

_____ _____

Date

Dr.Carol E. Lewis, Director
Agricultural and Forestry Experiment Station
University of Alaska Fairbanks

I. Authority

The Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA), Public Law 105-185, amended the Hatch Act of 1887, the Smith-Lever Act, and sections 1444 and 1445 of NARETPA to require plans of work to be received and approved by CSREES prior to the distribution of funding authorized under these Acts. The collection of information will satisfy the plan of work reporting requirements as imposed by these Acts. This collection of information includes three parts: the submission of a 5-year plan of work every five years, the submission of an annual update to the 5-year plan of work, if applicable, and the submission of an annual report of accomplishments and results.

II. Submission of the 5-Year Plan of Work (Revision 2005-2006)

. General

1. Planning Option:

The Alaska plan of work is submitted as a plan covering the activities of the Agricultural and Forestry Experiment Station, University of Alaska Fairbanks. Integrated activities with Extension are included; however, this is not a joint plan with Alaska Cooperative Extension.

2. Period Covered:

October 1, 2004 to September 30, 2006.

Alaska Plan of Work Contact:

<u>1862 Research</u>

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Planned Programs:

The University of Alaska Fairbanks School of Natural Resources and Agricultural Sciences and Agricultural and Forestry Experiment Station (SNRAS/AFES) performs research in agriculture, forestry, and land resources management that assists in ensuring economic and environmental sustainability and protection of living systems. SNRAS/AFES generates and disseminates knowledge to stakeholders who include students of higher education and resource users for the successful management and development of land resources in Alaska, the Western Region, and the nation. These efforts are jointly funded by federal formula funds, state matching funds, state and federal grant funds, and other private funding sources.

Function	Goal 1	Goal 2	Goal 3	Goal 4	Goal 5
1862 Research	Program 1			Program 2	Program 3

GOAL 1. AN AGRICULTURAL SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY. Through research and education, empower the agricultural system with knowledge that will improve competitiveness in domestic production, processing and marketing.

Program 1. To produce new and value-added agricultural products and commodities.

Statement of Issues:
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.

Currently, 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 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. 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 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. Research priorities will be determined by joint collaboration with faculty, our Board of Advisors, our students, agricultural and forestry producers, consumers, and other members of the public in general. In 1998/99, we met with the following stakeholders to assess research priorities for this program:

- Statewide Board of Advisors
- Alaska Farm Bureau
- Potato and vegetable growers
- Grain and forage producers
- Reindeer Herders Association
- Alaska Forest Association
- Alaska Livestock Producers

Performance Goal: To annually increase the total new and value-added agricultural and forest commodities and products for domestic and foreign markets.

Key Program Components:
Enhanced profitability of agricultural and forest production methods.

Primary utilization of base-funds in Alaska for Goal 1 is in applied research that addresses production practices for major crops and animal species. Key program areas:

- Agronomic and Horticultural Crop Production
- Greenhouse/Nursery Production
- Plant Disease Control/Biocontrol
- Traditional and Alternative Livestock Production
- Forest Products
- Marketing of Alaska Products

Internal and External Linkages:

Internal linkages include collaborative work among researchers from different departments within the School of Agriculture and Land Resources Management and Agricultural and Forestry Experiment Station and the Alaska Cooperative Extension. External linkages will continue with federal and state agencies, private sector stakeholders, and the public. Linkages will include collaborative research and outreach, seeking advice on research direction, and extending research results to users.

Target Audiences:

The target audiences are Alaska producers of agricultural and forestry products, consumers, other researchers and extension agents and specialists, and underserved

populations. Special attention will be given to the geographically disadvantaged in remote areas of the state.

Evaluation:

Products of Goal 1 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 (muskox and reindeer). 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.

Output Indicators:

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

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 plant and animal nutrition and pest control.

Identify new agricultural products and markets for Alaska producers.

Outcome Indicators:

Increased share of consumer food dollar for Alaska producers by 20 % over next five years.

Increase irrigated potato and forage acreage by 10% over the next five years

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

Costs avoided by utilization of less expensive in-state animal feeds

Program Projects:

- Agronomic and Horticultural Crop Production

  Roseann Leiner and Jeffery Smeenk ALK 01-09/06
  Production Practices, Cultivars, and Disease of Potato and Other Horticultural Crops

Description: Evaluate productivity response of newly acquired and developed cultivars of potatoes and vegetables to environmental factors, fungal and bacterial diseases, weed pressures, and pesticide treatments.

Roseann Leiner ALK 01-02/ 05
Cultivar Selection, Production Methods, and Market Quality of Vegetables in Alaska

Description: Evaluate cool season vegetables and provide data on production methods that can be used to produce profitable crops under changing markets at northern latitudes.

Allen Mitchell, ALK 02-05/07
Management Practices for Forages and Turfgrass at Northern Latitudes

Description: Objectives are designed to reduce some risks associated with establishment, harvest, and feeding of perennial forages and establishment and maintenance of turfgrasses for golf greens and fairways in cold climates.

Mingchu Zhang and Steve Sparrow ALK-02-06/07
Selection, Variety Testing, and Evaluation of Cultural Practices for Alternative Agronomic Crops in Alaska

Description: Alternatives to traditional animal feeds (small grains and forages) are being investigated as to their response to the environment of interior Alaska. These include oil seed crops and special use small grains.

Mingchu Zhang
Yield and Quality of Barley and Bromegrass as Affected by Zero/Minimum Tillage, Fertilizer Rate, and Cutting Regimes

Description: New Project

Stephen Sparrow ALK-02-06/07
Cicar Milkvetch, Forage Galega, and Lupinaster Clover as Potential Forage Crops for Alaska

Description: Current lack of northern adapted perennial legume forage crops is detrimental to sustainable dairy production in Alaska. This work will test three potential legumes that could have significant impact by providing an on-farm source of protein.

Vacant Horticulture/Plant Pathology

- Greenhouse/Nursery Production

M.G. Karlsson, ALK-00-09/05
Controlled Environment Production of Small Fruits, Berries, Floral Crops, and Greenhouse Adapted Food Crops

Description: Controlled environment production systems and technologies offer diverse opportunities to extend the growing season, increase productivity, improve quality and allow local production of crops once considered infeasible at this latitude. This research will evaluate interactions of light, daylength, and temperature on improving marketability of greenhouse grown flowers and food crops.

P.S. Holloway ALK-01-11/06 Horticultural Crop Production for Alaska

Description: Horticulture has been the largest agricultural industry in Alaska amounting to more than 80 percent of cash receipts for all agricultural crops in the state. This project will evaluate annual and perennial landscape plant materials and identify materials suitable for the Alaska nursery/landscape industry.

- Traditional and Alternative Livestock Production

Greg Finstad ALK 04- /09 Feed and Forage to Optimize Reindeer Production and Meat Quality

Description: Determine the palatability of locally produced feed ingredients for use in developing low-cost reindeer diets under feedlot conditions and compare meat quality with deer receiving imported feeds.

M.P. Shipka ALK-00-01/, W-112/04 Reproductive Performance in Domestic Ruminants

Description: At present, reindeer and muskox herds represent primarily Alaska Native enterprises and offer economic opportunities in extremely rural settings. For the native herders, bull management effects timing of breeding and thus improve reproductive success. This project combines elements of multistate research, integrated activities, and stakeholder involvement and will include additional species such as bison in the future.

Norman Harris ALK 03-03/08 Spatially Modelling the Distribution of Beef Cattle and Reindeer on Ranges at High Latitudes

Description: Alaska imports more than 90 percent of its food supply, including most red meat. With the current market structure, imported meats and dairy products are generally less expensive than Alaska-grown. This is principally caused by lack of marketing infrastructures since existing ranching enterprises cannot support processing, distribution, and marketing investments. This project will assist in increasing production of meat animals and subsequent narrowing of the differences in imported and Alaska-grown products.

- Forest Products

E. C. Packee ALK-03-12/08 Forest Stand Characterization and Growth and Yield for the Alaskan Northern Forest

Description: Quantify timber productivity of Alaskan Northern Forest lands and provide resource managers with appropriate information for timber management decisions and stand prescriptions. Identify , document , and review available timber inventories for the Northern Forest in Alaska.

- Marketing of Alaska Products

Projects under this theme are either terminated or in abeyance pending development of a new Hatch project that will be fully described in the new five-year plan of work (2007-2011.

Multi-State Activities:

The authority for the formal multistate research is the CSREES Multistsate Research Office and the Western Association of Agricultural Experiment Station Directors (http://www.colostate.edu/Orgs/WAAESD). Accomplishments will be reported through Western Region Multistate Research Committee annual reports, impact statements, CRIS AD 421s, AD 419s, and the AREERA Annual Reporting of Accomplishments and Results.

- Animal Reproduction

M.P. Shipka W-112/04 Reproductive Performance in Domestic Ruminants

Description: Research will include radiotelemetric estrous detection system in farmed reindeer, controlled internal drug release (CIDR) in reindeer and muskox, and reproductive research in other alternative livestock species.

- Greenhouse Production

M.G. Karlsson NCR101/01 Controlled Environment Technology and Uses

Description: In view of Alaska's relative isolation from the contiguous states, the majority of our multistate activities will be accomplished through formal multistate technical and coordinating committees. Examples of other collaboration under Goal 1 include:

A controlled environment raspberry project with the University of Minnesota and Cornell University (Dr. Meriam Karlsson)

Integrated Activities with Cooperative Extension:

In anticipation of AREERA requirements, the Agricultural and Forestry Experiment Station and Alaska Cooperative Extension initiated split appointments in FY99 between researchers in the Plant, Animal, and Soil Science Department (SNRAS/AFES) and Extension Specialists in the Land Resources Department (CES). Since FY2000 split positions and collaborative activities have existed in horticulture, agronomy, and animal science. We anticipate that all split positions will be actively involved in multistate efforts through research technical or coordinating committees. Specific areas of integrated programming will include:

Agronomic Crops and Soils

Animal feeds including forages, pasture, and grains occupy the majority of land in agricultural production primarily in Delta Junction, the Matanuska-Susitna Valleys, and the Kenai Peninsula. Research will continue to center on variety evaluation, alternative crops, nutrient requirements and management, and general soil management.

Cooperating Faculty:

Agricultural and Forestry Experiment Station	Alaska Cooperative Extension
S.D. Sparrow Mingchu Zhang Forage and turfgrass management	T.R. Jahns Peter Bierman

Potato and Vegetable Crops

Potato and vegetable production accounts for less than 10 percent of the total acres in crop production, but 32 percent of cash receipts. Research and demonstration over the period of this plan will center on variety selection, disease control and management, nutrient requirements, irrigation, and weed control.

Cooperating Faculty:

Agricultural and Forestry Experiment Station	Alaska Cooperative Extension
J. H. McBeath P. Holloway Roseann Leiner	R.Gorman J. Riley M. Hebert Jeff Smeenk Peter Bierman

GreenhouseManagement/Nursery

Greenhouse production accounts for approximately 50 percent of the total agricultural cash receipts for Alaska. The primary marketed products are cut flowers, bedding plants,

ornamentals and other landscaping plants. Research and outreach will continue to address physiological response to light, day length, and temperature in controlled environments and research and demonstration efforts at the Georgeson Botanical Garden identifies winter hardy perennial and annual ornamentals suitable for the landscaping and nursery industry. The latter has a high degree of volunteer and extension involvement and both projects participate in extension workshops, master gardener program, and the annual greenhouse and nursery symposium.

Agricultural and Forestry Experiment Station	Alaska Cooperative Extension
M. G. Karlsson	M. Hebert
P. Holloway	J. Riley
	F. Sorensen
	Jeff Smeenk

Reindeer Production

Alaska native reindeer herders manage approximately 35,000 deer on Alaska's Seward Peninsula. AFES has worked cooperatively with Alaska Cooperative Extension Reindeer Agent providing research information related to range management, reproduction, disease management and reindeer nutrition. The current Hatch project will determine palatability and digestibility of locally grown feeds for low-cost diets for captive reindeer.

Agricultural and Forestry Experiment Station	Alaska Cooperative Extension
Greg Finstad	Milan Shipka

Integrated activities with the Alaska Cooperative Extension will constitute a minimum of a) twice the FY1997 integrated activities or b) a baseline 25 percent, whichever is less.

Program Duration:

These projects are all of moderate duration (2 years). However, because of variable start dates of approved Hatch and McIntire-Stennis projects, some will terminate prior to the 2-year duration of this plan. These will be dealt with through possible amendments to the plan if the new projects significantly alter the approved plan of work.

Allocated Resources: ($ x 1000; [SY units])

SOURCE	FY2005	FY2006			
Hatch	**633.7 [6.5]**	**633.7 [6.5]**			
McIntire-Stennis	**87.3 (1.0)**	**87.3 [1.0]**			
Match	**897.6**	**897.6**			
Other	**177.0**	**177.0**			
TOTAL	**1895.6 [7.5]**	**1895.6 [7.5]**			

GOAL 4: GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT. Enhance the quality of the environment through better understanding of and building on agriculture's and forestry's complex links with soil, water, air, and biotic resources.

Program 2. To increase the research and knowledge base for environmental sciences, agriculture, and forestry including conserving and protecting ecosystem integrity and biodiversity.

Statement of Issues:
Alaska has a wide expanse of forest and rangelands with less than 1 percent having undergone commodity production or land-use change. 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. Research and outreach strategies need to assure a knowledge base that will ensure better decision making capabilities. Research priorities for this program will be determined by joint collaboration with faculty, our Board of Advisors, our students, private sector producers and consumers, and other members of the public in general. In 1998/99, 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
- Boreal Forest Council

Performance Goal: Increase knowledge and options available to agricultural**,** forestry**,** and other land resource producers in a manner that supports sustainable development**.**

Key Program Components: Research projects will address:

- Plant Disease Control/Biocontrol
- Reclamation and revegetation of disturbed lands
- Soil carbon flux, permafrost characteristics, and nutrient cycling
- Forest protection
- Forest ecosystems and biological conservation and diversity
- Forest management and harvest
- Multi-resource planning and policy

Internal and External Linkages:

Internal linkages include collaborative work among researchers from different departments within the School of Natural Resources and Agricultural Sciences, the Agricultural and Forestry Experiment Station, Cooperative Extension, the College of

Natural Resources Development and Management, and the Institute of Arctic Biology. External linkages involve a formal interface through our Board of Advisors, public and private cooperators including Alaska Forestry Association; Alaska Farm Bureau; other private producers; Alaska Departments of Natural Resources, Environmental Conservation, and Fish and Game; U.S. Forest Service; National Park Service; Natural Resource Conservation Service; and relevant conservation groups. We have additional external links through the Long Term Ecological Research program and individual involvement of faculty in regional and global scale research efforts such as the BOREAS Project and UAF's Center for Global Change.

Target Audiences:

The target audiences include producers and consumers of agricultural and forestry products, 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.

Evaluation:

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.

Output indicators:

Methodologies for reclamation/revegetation of disturbed lands and ecosystems

Identify agricultural and forestry management practices that minimize environmental risks

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

Database for land resources planning, policy, and law as it relates to human activity

Outcome Indicators:

Changes in land-use patterns that will support sustainable development

Increase biological conservation and diversity on significant acreage of public and private lands

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

Reduce instances of surface water contamination related to resource development

Establishment of criteria for effective conflict resolution

Program Projects:

- Plant Disease Control/Biocontrol

J.H. McBeath W-1147/08 Managing Plant-Microbe Interactions in Soil to Promote Sustainable Agriculture

Description: Identify and characterize plant microbe interactions that provide suppression of diseases caused by soilborne plant pathogens. To understand how biological and environmental factors regulate microbial populations and expression of genes responsible for disease control.

- Reclamation and revegetation of disturbed lands

D.J. Helm ALK-00-02/05 Reclamation and Revegetation of Disturbed Lands

Description: Evaluate longer-term (5 – 10 Years) effects on woody plant growth and natural colonization of anthropogenically disturbed sites in various mining enterprises in Alaska.

- Soil carbon flux, permafrost characteristics, and nutrient cycling

C.L. Ping ALK-03-02/08 Black Spruce Forest Soils in Boreal Regions of Alaska: their Characterization, Organic Carbon Pool and Relationship to Forest Management

Description: 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.

J. Yarie ALK 01-0/06 Long-Term Forest Ecosystem Monitoring and GIS Modeling of Taiga Forest Dynamics

Description: Determine the influence 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. Develop a computer model on the functional aspects of forest ecosystem dynamics at a broad landscape scale in interior Alaska.

- Forest Protection

D. Verbyla	ALK 99-02/04	Satellite Change Detection Techniques for Mapping Spruce Bark Beetle Infestation in Alaska

Description: Develop methodology for digital mapping of spruce bark beetle infestation classes (heavy, moderate, low) based on multi-temporal analysis of existing Landsat TM data.

- Forest Ecosystems and Biological Diversity and Conservation

G.P. Juday	ALK 01-08/06	Response of Forest Ecology and Growth to Climate Variability in Alaska: Patterns, Controls, and Strategies for Management.

Description: Carbon dioxide is one of the important greenhouse gases in the earth's atmosphere and CO2 enrichment through fossil fuel combustion has produced a discernable human influence on global climate. Reliable measurements of net uptake of carbon dioxide into its forests will assist Alaska in establishing the magnitude and thus obtaining market value cash income.

- Forest Management and Harvest

J. D. Fox	99-06/04	Stream Temperature Response to Timber Harvest Activities in Interior Alaska

Description: Evaluate effects of ice bridges for timber harvest access on stream temperature, ice thickness, and fish habitat.

- Multi-resource planning and policy

Julie Lurman W-192 Rural Communities and Public Lands in the West: Impacts and Alternatives (beginning 9/1/04)

Description: This multistate project seeks to provide scholarship-based analysis of public land use alternatives with a focus on local social and economic impacts. 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 purposes

S.K. Todd 02-07/07 Assessing the Resource Planning Process in Alaska

Description: Develop a database of land resources planning cases in Alaska for use in constructing a model for effective planning.

Multi-State Activities:

The majority of scientists and projects reported in Goal 4 are in Forest Science and federal formula funds utilized are McIntire-Stennis.

W-106 G.A. Mitchell 99-05/29 Multi-State Research Coordination
C. E. Lewis

- Natural Resources Policy and Law

Julie Lurman W-192 Rural Communities and Public Lands in the West: Impacts and Alternatives (beginning 9/1/04)
Description: This multistate project seeks to provide scholarship-based analysis of public land use alternatives with a focus on local social and economic impacts.

Integrated Activities with Cooperative Extension:

There will be two program areas under Goal 4 which will involve collaboration with Alaska Cooperative Extension:

Soil Quality/Nutrient Management

The impact of tillage/crop rotation on soil conservation and quality is an ongoing program involving Experiment Station soil scientists and Extension agents.

Agricultural and Forestry Experiment Station	Alaska Cooperative Extension
S. D. Sparrow	P. Kaspari
Mingchu Zhang	T. R. Jahns

Forest Production/Protection

Alaska Cooperative Extension has a single Forestry Specialist who works cooperatively with AFES researchers both in applied research, demonstration, and dissemination on issues including growth and yield, wildlife habitat, forest protection, and logging impacts.

Agricultural and Forestry Experiment Station	Alaska Cooperative Extension

E. C. Packee R. Wheeler
D. Valentine
G. Juday

Program Duration:

The projects addressing National Goal 4 is of moderate duration (5 years).

Allocated Resources: ($ x 1000; [SY units])

SOURCE	FY2005	FY2006			
Hatch	**263.7 [2.0]**	**263.7 [2.0]**			
McIntire-Stennis	**381.6 [6.5]**	**381.6 [6.5]**			
Match	**611.6**	**611.6**			
Other	**745.2**	**745.2**			
TOTAL	**2002.0 [8.5]**	**2002.0 [8.5]**			

GOAL 5. ENHANCE ECONOMIC OPPORTUNITY AND QUALITY OF LIFE FOR AMERICANS. Empower people and communities, through research-based information and education, to address economic and social challenges facing our communities.

Program 3. Pursuit of economic opportunities for citizens and communities in diverse geographic locations.

Statement of Issues:

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.

Performance Goal: Increase economic opportunities and address community needs in rural Alaska.

Key Program Components: Research projects will address;

- Development of regional economic model for rural Alaska
- Resource development impact on communities

Internal and External Linkages:

Internal linkages include collaborative work among researchers from different departments within the School of Natural Resources and Agricultural Sciences and the Agricultural and Forestry Experiment Station and the Alaska Cooperative Extension. External linkages will include other units within the UA system including such entities as the Schools of Management, Mineral Engineering and Fisheries, federal and state agencies, private sector stakeholders, non-profit development corporations (Alaska Native and village corporations), and other village and tribal organizations.

Target Audiences:

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.

Evaluation:

Products of Goal 5 will center on providing research supported information (models) to agency and government decisionmakers 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.

Output Indicators:

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

Attendance and participation in various conflict resolution scenarios related to use of natural resources in rural Alaska.

Identification of impacts of projected changes will have on communities and families

Number of business or development plans implemented

Outcome Indicators

New policy/regulations directed toward appropriate resources development

Increased local businesses and job opportunities in rural communities and villages

Energy-efficient technology availability in rural communities

Program Projects:

J.A. Greenberg ALK 01-10/06 Impact Analysis for Alaska Natural Resources

Description: Investigate the application of input-output methodologies to modeling rural Alaskan Regional Economies for ongoing impact assessment. Models to include: subsistence production within a home production famework, Norton Sound Regional economic model (fishing industry), and economic impact assessment model.

Multistate Activities:

J.A. Greenberg WCC-109/05 Seafood Marketing and the Management of Marine and Aquacultural Resources

Program Duration:

The program addressing National Goal 5 consists of 4 projects within the Agricultural and Forestry Experiment Station and will be of moderate (5 years) duration.

Allocated Resources: ($ x 1000; [SY units])

SOURCE	FY2005	FY2006			
Hatch	**40.9 [0.5]**	**40.9 [0.5]**			
Match	**19.0**	**19.0**			
TOTAL	**59.9 [0.5]**	**59.9 [0.5]**			

Stakeholder Input:

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.

In 1999, the Board of Advisors developed and made 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 population. The survey availability will be advertised in major newspaper, list servs, 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. The website address for the survey is:

http://www.lter.uaf.edu/~stodd/nrmsurvey/

Regional Listening Sessions: 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 Meetings
- Mat-Su Potato and Vegetable Growers Meeting
- Delta Farm Forum
- Greenhouse Growers Annual Meeting
- Alaska Agricultural Symposium
- Reindeer Herders Association Annual Meeting
- Alaska Forestry Association Annual Meeting
- Alaska Livestock Producers Annual Meeting
- On-demand meetings at the request of stakeholders

These traditional listening sessions will continue to be focal points for listening to stakeholders. As required by the AREERA of 1998, and in cooperation with the Alaska Cooperative Extension, these will be advertised as broadly as possible and identified as points of contact for public input into research and extension program development.

Underserved Populations Identified:

Alaska Natives
Women
African Americans
Hispanics

Asian Americans

Scientific Peer Review – The Agricultural and Forestry Experiment Station Plan

All new and revised Hatch or McIntire-Stennis projects proposals within the Agricultural and Forestry Experiment Station undergo scientific peer review using the Hatch and McIntire-Stennis Administrative Manual's Appendix F " Essentials of a Project Proposal". All proposals are submitted to the Director of the Agricultural and Forestry Experiment Station. The peer review panel will be composed of a minimum of three members and are appointed by the Director. The panel consists of competent authorities in the discipline of the proposal or related disciplines and will include at least one authority in a supporting discipline. Each reviewer completes a Peer Review Form consisting of specific criteria, provides other comments and suggestions, and makes a recommendation to the Director. Reviews are returned to the Director for transmittal to the author(s) of the project proposal. The author(s) review all comments and recommendations of the reviewers and make adjustments or explanations in the proposal.

The Director reviews all comments and recommendations from the reviewers along with the revised proposal. 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 Western Association of Agricultural Experiment Station Director's Research Implementation Committee (RIC) and 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/.

Multi-institutional, Multi-disciplinary, Multi-state, Integrated Activities:

The University of Alaska Fairbanks Agricultural and Forestry Experiment Station participates or is in the process of becoming a participant in the following multistate research and research coordinating committees:
W-106 Multistate Research Coordination, Western Region
W-1147 Managing Plant-Microbe Interactions in Soil to Promote Sustainable Agriculture
W-112 Reproductive Performance in Domestic Ruminants
WCC-021 Revegetation and Stabilization of Deteriorated and Altered Lands
WCC-093 Western Region Soil Survey and Inventory and National Cooperative Soil Survey (NCSS)
WCC-109 Seafood Marketing and the Management of Marine and Aquacultural Resources
NCR-101 Controlled Environment Technology and Uses

4-NRSP/IR-4 A National Agricultural Program to Clear Pest Control Agents for Minor Uses

The authority for this research is the CSREES Multistate Research Office and the Western Association of Agricultural Experiment Station Directors (http://www.colostate.edu/Orgs/WAAESD). Accomplishments will be reported through Western Region Multistate Research Committee annual reports, impact statements, CRIS AD 421s, AD 419s, and the AREERA Annual Reporting of Accomplishments and Results.

Other non-formal collaborations include research in horticulture, agronomy, plant diseases, global climate change, soil classification and advanced technologies with other land-grant as well as non-land grant institutions, USDA-NRCS, USDA-ARS, NASA, U.S. Forest Service, and the National Parks Service. The Agricultural And Forestry Experiment Station is a member of the Circumpolar Agriculture Association and participates in germplasm and scientific exchanges with other northern latitude countries. Theses collaborative activities will be verified by MOUs and through the AREERA Annual Reporting of Accomplishments and Results.

Projected Total Resources (all sources) ($ X 1000; [SY units]) *

Program	FY2005	FY2006			
1	1618.7 [7.0]	1618.7 [7.0]			
2	1256.9 [8.0]	1256.9 [8.0]			
3	60.0 [0.5]	60.0 [0.5]			
TOTAL	2935.6 [15.5]	2935.6 [15.5]			

* Projected resources do not include instruction. Higher education FTEs total 6.2 with a budget of approximately $760,000.

Agricultural and Forestry Experiment Station 1997 Hatch Formula Fund Expenditures on Multistate Programs

In FY97, the Alaska Agricultural and Forestry Experiment Station received $890,206 in Hatch funding, of which, $131,919 or 15 % was allocated as Hatch Regional Funds. FY99 Hatch funding was $948,214, of which, $141,889 or 15% was allocated as Hatch Regional Funds. As required by AREERA 1998, we are in the process of redirecting resources to additional multistate projects.

Equal Employment Opportunity Reporting:

We adopt by reference section P04.03.01 of the University of Alaska Board of Regents Policy for Equal Employment Opportunity and Affirmative Action. Compliance reports will be filed by the University of Alaska Statewide Human Resources Office with the

Equal Employment Opportunity Commission, U.S. Department of Education, the Office of Federal Contract Compliance Programs, and the Office of Civil Rights.