MEMORNADUM

July 15, 1999

TO: Brett Hewitt
Partnerships/POW

FROM: G. Allen Mitchell, Acting Director
Agricultural And Forestry Experiment Station
University of Alaska Fairbanks

CC: Dr. Fredric Husby, Interim Dean CNRDM

Dr. Anthony Nakazawa, Director ACE

SUBJECT: Plan of Work

Please find attached the Plan of Work for the Agricultural and Forestry Experiment Station, School of Agriculture and Land Resources Management, University of Alaska Fairbanks. This plan does not include the plan of the Alaska Cooperative Extension but was developed in conjunction with their plan.

PLAN OF WORK
2000 - 2004
UNIVERSITY OF ALASKA FAIRBANKS
SCHOOL OF AGRICULTURE AND LAND RESOURCES MANAGEMENT
AGRICULTURAL AND FORESTRY EXPERIMENT STATION

I. Preface and 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

A. 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, 1999 through September 30, 2004.

Alaska Plan of Work Contact:

<u>1862 Research</u>

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Planned Programs:

The University of Alaska Fairbanks School of Agriculture and Land Resources Management and Agricultural and Forestry Experiment Station (SALRM/AFES) performs research in agriculture, forestry, and land resources management that assists in ensuring economic and environmental sustainability and protection of living systems. SALRM/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.

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

Output Indicators:

- Publications
- Grants and Contracts
- Outreach and Service
- Impact Statements/Success Stories
- Student Numbers

Outcome Indicators:

- Stakeholder Impacts/Benefits
- Increased Income
- Costs Avoided
- Consumer Impacts (i.e. Food Quality, Environmental Quality)
- Social Impacts

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.

Program Duration:

The program addressing National Goal 1 consists of approximately 18 projects. These projects are all of moderate duration (5 years). However, because of variable start dates of approved Hatch and McIntire-Stennis projects, some will terminate prior to the 5-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	FY2000	FY2001	FY2002	FY2003	FY2004
Hatch	**757.1 [7.0]**	**757.1 [7.0]**	**757.1 [7.0]**	**757.1 [7.0]**	**757.1 [7.0]**
McIntire-Stennis	**27.3 [0.5]**	**27.3 [0.5]**	**27.3 [0.5]**	**27.3 [0.5]**	**27.3 [0.5]**
Match	**961.9**	**961.9**	**961.9**	**961.9**	**961.9**
Other	**177.0**	**177.0**	**177.0**	**177.0**	**177.0**
TOTAL	**1923.3 [7.5]**	**1923.3 [7.5]**	**1923.3 [7.5]**	**1923.3 [7.5]**	**1923.3 [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:

- Reclamation and revegetation of disturbed lands
- Soil carbon flux, permafrost characteristics, and nutrient cycling
- Soil health and sustainable agriculture
- Wildland fire ecology
- Silviculture (forest growth, yield and site productivity)
- Animal waste management
- Multi-resource planning and policy
- Biological conservation
- Resources management and climate change
- Forest ecosystem dynamics

Output indicators:

- Publications
- Grants and Contracts
- Outreach and Service
- Impact Statements/Success Stories

Outcome Indicators:

- Stakeholder Impacts/Benefits
- Environmental Quality
- Social Impacts
- Reduced Water Pollution
- Land-Use Patterns That Support Sustainable Development

Internal and External Linkages:

Internal linkages include collaborative work among researchers from different departments within the School of Agriculture and Land Resources Management, 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.

Program Duration:

The program addressing National Goal 4 consists of approximately 12 projects. These are of moderate duration (5 years).

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

SOURCE	FY2000	FY2001	FY2002	FY2003	FY2004
Hatch	**134.8 [1.0]**	**134.8 [1.0]**	**134.8 [1.0]**	**134.8 [1.0]**	**134.8 [1.0]**
McIntire-Stennis	**432.2 [6.5]**	**432.2 [6.5]**	**432.2 [6.5]**	**432.2 [6.5]**	**432.2 [6.5]**
Match	**751.2**	**751.2**	**751.2**	**751.2**	**751.2**
Other	**855.2**	**855.2**	**855.2**	**855.2**	**855.2**
TOTAL	**2173.4 [7.5]**	**2173.4 [7.5]**	**2173.4 [7.5]**	**2173.4 [7.5]**	**2173.4 [7.5]**

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 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;

- Multi-resource planning and development
- Resource development impact on communities
- Environmental policy impact on economic needs of communities
- Determination of non-market value of natural resources

Output Indicators:

- Publications
- Workshop Presentations and Attendance
- Impact Statements/Success Stories

Outcome Indicators

- Small business grant proposals
- Community planning/implementation
- Energy-efficient technology in rural communities
- New legislation directed toward appropriate resource development

Internal and External Linkages:

Internal linkages include collaborative work among researchers from different departments within the School of Agriculture and Land Resources Management 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 and Mineral Engineering, 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.

Program Duration:

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

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

SOURCE	FY2000	FY2001	FY2002	FY2003	FY2004
Hatch	**56.2 [0.8]**	**56.2 [0.8]**	**56.2 [0.8]**	**56.2 [0.8]**	**56.2 [0.8]**
Match	**56.4**	**56.4**	**56.4**	**56.4**	**56.4**
TOTAL	**112.6 [0.8]**	**112.6 [0.8]**	**112.6 [0.8]**	**112.6 [0.8]**	**112.6 [0.8]**

Stakeholder Input:

The SALRM/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 SALRM/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 SALRM website, a strategic planning survey to solicit stakeholder input from all citizens of Alaska. Updated versions of the survey will be utilized in future years as needed to maintain broad input for SALRM/AFES programs.

Regional Listening Sessions: SALRM/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.

Merit and Peer Review:

All Hatch and McIntire-Stennis projects within the Agricultural and Forestry Experiment Station undergo scientific peer review as outlined in the SALRM/AFES Peer Review Procedure on-file in the Office of the Dean and Director and the SALRM/AFES Business Office and has been submitted to CSREES in past years. All proposals utilize and are reviewed by a peer review panel based on the Hatch Administrative Manual's Appendix F "Essentials of a Project Proposal". The SALRM/AFES Peer Review Procedure is available upon request.

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-147 Managing Plant-Microbe Interactions in Soil to Promote Sustainable Agriculture
W-166 Evaluation and Improvement of Barley for Food and Feed
W-112 Reproductive Performance in Domestic Ruminants

WCC-021 Revegetation and Stabilization of Deteriorated and Altered Lands
WCC-089 Potato Virus Disease Control
WCC-093 Western Region Soil Survey and Inventory and National Cooperative Soil Survey (NCSS)
WCC-094 Research and Administration Coordination in Animal Science
WCC-103 Soil, Water and Plant Analysis for Improved Nutrient Management and Water Quality
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.

Integrated Activities with Cooperative Extension

In anticipation of AREERA requirements, the University of Alaska Fairbanks Agricultural and Forestry Experiment Station and Alaska Cooperative Extension initiated split appointments in FY99 between researchers in the Plant, Animal, and Soil Science Department (SALRM/AFES) and Extension Specialists in the Land Resources Department (ACE). In FY2000 split positions and collaborative activities will exist in horticulture, agronomy, and animal science. We anticipate that all split positions will be actively involved in multistate efforts through RRF's or coordinating committees. These activities along with traditional interaction between AFES researchers and Extension agents and specialists will constitute a minimum of a) twice the FY1997 integrated activities or b) a baseline 25 percent, whichever is less.

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

Program	FY2000	FY2001	FY2002	FY2003	FY2004
1	1923.3 [7.5]	1923.3 [7.5]	1923.3[7.5]	1923.3[7.5]	1923.3[7.5]
2	2173.4 [7.5]	2173.4 [7.5]	2173.4 [7.5]	2173.4 [7.5]	2173.4 [7.5]
3	112.6 [0.8]	112.6 [0.8]	112.6 [0.8]	112.6 [0.8]	112.6 [0.8]
TOTAL	4209.3 [15.8]	4209.3 [15.8]	4209.3 [15.8]	4209.3 [15.8]	4209.3 [15.8]

* Projected resources do not include instruction. Higher education FTEs total 6.2 with a budget of approximately $660,000.

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 Education Opportunity Commission, U.S. Department of Education.

Submitted By:

_____ 7/15/99

G. Allen Mitchell

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Agricultural and Forestry Experiment Station
University of Alaska Fairbanks