High Latitude Agriculture- AFES

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V(A). Planned Program (Summary)

1. Name of the Planned Program

High Latitude Agriculture- AFES

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	15%		0%	
204	Plant Product Quality and Utility (Preharvest)	10%		0%	
205	Plant Management Systems	10%		55%	
212	Pathogens and Nematodes Affecting Plants	0%		5%	
301	Reproductive Performance of Animals	20%		5%	
302	Nutrient Utilization in Animals	5%		5%	
306	Environmental Stress in Animals	5%		0%	
307	Animal Management Systems	20%		5%	
401	Structures, Facilities, and General Purpose Farm Supplies	0%		5%	
402	Engineering Systems and Equipment	0%		5%	
405	Drainage and Irrigation Systems and Facilities	0%		5%	
502	New and Improved Food Products	0%		5%	
701	Nutrient Composition of Food	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	6.7	0.0
Actual	0.0	0.0	6.6	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	545228	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	837461	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	533433	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

In animal research, **the reproductive performance of domestic ruminants** project the research efforts to date have included muskox and reindeer with emphasis on estrus, breeding and gestation length as well as milk production in reindeer cows and calf growth rate associated with specific milk components. **The feed and forage to optimize reindeer production and meat quality** compared the effects two pasture grasses typically grown in Alaska on feed intake, growth of females and calves, and milk composition. In the **mineral flux in reindeer** project we compared the trace mineral status of blood serum and production in reindeer raised on a milled ration to serum trace mineral concentrations and production of Seward Peninsula reindeer. **Spatially Modeling the Distribution of Beef Cattle and Reindeer** used GPS tracking collars on beef cattle to collect data. In the agricultural/horticultural projects **barley and bromegrass fertilizer trials** soil samples from the tillage plots were analyzed. **Controlled environment horticulture** evaluated six sunflower selections in the ProCut series along with Sunbright and Sunright Supreme for field cut flower production. **Developing and integrating components for commercial greenhouse production** find producing greenhouse lettuce and other crops in high latitude locations is challenging. The greenhouse technology and best management procedures developed in this project e are suitable for dissemination and use in various locations throughout Alaska and other places with similar climates. **Horticultural crop production for Alaska** propagated twelve Alaska native plants from softwood and semi-hardwood stem cuttings collected from late June through August. **Potential perennial lignocellulosic energy crops** being established for study are:from woody species felt-leaf willow, Pacific willow, and balsam poplar, willows, alders, and birch and 14 herbaceous species including native and non-native grasses and forbs. The **season extension for high latitude market garden** project is conducting variety trials and optimization trials along with developing and evaluating high tunnel endwalls that can be easily removed for equipment operation. **Selecting alternative agronomic crops for Alaska** variety trials continued evaluation of spring 6-row feed barley, hard red spring wheat, oilseeds including Polish canola, Argentine canola, Hybrid canola, Oriental and brown mustards, yellow mustard, and Camelina selected from northern Canadian and U.S. sources for testing against the standard Alaska varieties - Otal spring feed barley, Thual hulless barley, Ingal hard red spring wheat, and Reward Polish canola.

2. Brief description of the target 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 Advisors
- 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
- Peony Growers Association

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	115	250	0	0
2008	115	250	0	0

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

Patent Applications Submitted

Year	Target
Plan:	1
2008:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	30	
2008	0	32	32

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	25	25

Output #2

Output Measure

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

Year	Target	Actual
2008	2	8

Output #3

Output Measure

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

Year	Target	Actual
2008	2	2

Output #4

Output Measure

Identify high value plant products.

Year	Target	Actual
2008	2	10

Output #5

Output Measure

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

Year	Target	Actual
2008	2	2

V(G). State Defined Outcomes

O No.	Outcome Name
1	Cost savings by producers utilizing more efficient crop production practices (better varieties, disease control, nutrient management, irrigation, etc.)
2	Cost savingsby utilization of in-state animal feeds
3	Number of producers utilizing recommended practices for agronomic and horticulture crops.
4	Number of new crop and animal markets identified and utilized.
5	Magnitude of in-state inputs used for plant and animal production
6	Number of golf courses using recommended turfgrass cultivars and management practices.
7	Number of new products and new uses of traditional products available for markets.

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Outcome #1

1. Outcome Measures

Not reporting on this Outcome for this Annual Report

2. Associated Institution Types

3a. Outcome Type:

3b. Quantitative Outcome

Year	Quantitative Target	Actual

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Extreme climate is the most important external factor. The growing season can be dry and hot or wet and rainy in interior Alaska. The Matanuska Valley and the Delta region are subject to high winds year round. Climate change appears to be effecting climate patterns and subsequent temperature and precipitation ranges. The issue of food security has become more important with the fluctuation in the price of oil.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation