2007 University of Alaska Combined Research and Extension Annual Report

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I. Report Overview

1. Executive Summary

The University of Alaska Fairbanks' School of Natural Resources and Agricultural Sciences (SNRAS), Agricultural and Forestry Experiment Station (AFES), and Cooperative Extension Service (CES) are dedicated to providing research, education and outreach relevant to the sustainable development and use of Alaska's natural resources. We excel at helping the people of Alaska and the circumpolar north develop new economic opportunities and improve their quality of life.Certain general characteristics of the natural resource scene have to be recognized in planning a program of research and outreach in Alaska. Alaska is culturally diverse, with Alaska Native communities following traditional ways of life virtually side by side with modern sophisticated urban centers. Management and development of the natural resources of Alaska historically and presently have supported and stabilized the state's economy. Alaska is both productive and diverse for its northern location with extensive petroleum, mineral, land, forest, and fishery resources. However, the economy has demonstrated very little value-added activity or any type of sustained economic activity.This has resulted in a seemingly never ending series of boom and bust cycles.

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.

The 2007 reporting year saw the emergence of four focus areas for research, education and outreach in the state of Alaska. The SNRAS/AFES began building its planned programs around these focus areas. Energy is a concern and new crops including wood biomass became part of the High Latitude Agriculture program. Climate change research was already a part of the Management of Ecosystems, High Latitude Soils, and Geographic Information Planned Programs. A new faculty hire added to this expertise in SNRAS/AFES. Regional and local food production has always been a focus of the High Latitude Agriculture planned program and this continued in the 2007 reporting period with peonies, Alaska berries, and controlled environments to extend the growing season and a continuation of sports turf research to answer a rapidly growing demand for sustainable turf that is a user of low inputs and can withstand subarctic climatic conditions. Regional economic models were developed to assist the reindeer and fishing industries. SNRAS/AFES continued its emphasis on sustainability for communities and the UAF campus with the development of a GreenMap for the city of Fairbanks. Infused throughout these efforts was the answer to a demand for youth and adult education to fill increasing needs for Alaskans to fill Alaskan jobs. Overall, SNRAS/AFES began its concentration on energy, climate change, food and food safety in the format of local and regional production with an emphasis on low inputs and high value products, and youth and adult education and training for the Alaskan workforce.

The Cooperative Extension Service (CES) operates four program areas associated with the planned programs: Agriculture and Horticulture; Home, Health and Family Development, 4-H/Youth Development, and Natural Resources/Community Development. The Director reports to the Provost of the University of Alaska Fairbanks through a Vice-Provost for Outreach/ Director of Cooperative Extension. The position is currently filled by an interim Vice-Provost/Director. A search for a permanent person to occupy the position is ongoing. Extension operates eight district offices around the state with additional affiliate offices and publication points.

Changes in Extension leadership in mid-reporting period brought new directions in program delivery and reporting. The interim director focused on securing additional funding for programs, reducing the expenditures to create a balanced budget with a minimum impact on programming, and providing field faculty support and professional development in the area of grant funding and management. The emphasis on reporting impacts has come to the forefront as another administrative priority. Resources are available for faculty to incorporate impacts as well as behavior change using logic model evaluation planning.

Programmatically, the outputs for all four areas of Extension outreach are impressive, given the geographical challenges of coordinating workshops and conferences. Agriculture faculty provided consultations, both one-on-one and group presentations, and outreach on optimum livestock production practices.Both Agriculture and Horticulture faculty provided outreach to commercial and personal crop production and gardening which is very popular across the state, especially as food security and prices loom as larger issues for community viability. The Natural Resources and Community Development program area has taken a novel approach to stewardship, creating a theme approach that builds on stakeholder interest as a grassroots planning tool. Energy began to take on increased importance in the Sustainable Individuals, Families, and Communities Planned Program. Finally, Youth Development began implementation of external review recommendations of the prior year, looking for ways to

increase participation from underserved and minority populations, supporting the goal of National 4-H Council to reach seven million young people with programs and activities.

The Agricultural and Forestry Experiment Station and the Cooperative Extension Service are leaders in maintaining the sustainability of the use,of natural resources in the state of Alaska. These efforts are jointly funded by federal formula funds, state matching funds, competitive grants and other state, federal, and private sector funds.

AFES and CES developed planned programs separately which is reflected in the outcome and output targets. AFES outcomes and outputs are largely qualitative. We have found this cumbersome and have worked to restructure our planned programs in the 2009 POW. We anticipate this process to continue as we continue and enhance collaboration.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	30.0	0.0	16.1	0.0
Actual	34.5	0.0	17.9	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

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

2. Brief Explanation

EXPERT PEER REVIEW: Outside expert peer reviews were conducted for 14 new AFES projects. Reviews are on file.

INTERNAL UNIVERSITY PANEL: In January 2007, a change in Extension directorship, accentuated by the loss of an associate director and two faculty members, created a sense of instability, heightened by a lack in financial resources. A CES Vision Task Force comprised of faculty, staff, advisory council members and administration, provided recommendations for a potential administrative reorganization of CES and how it might better fulfill the land-grant mission of UAF. Recommendations were forwarded to and rejected by the UAF Chancellor. The UA President called for an external review as required by the UA Board ofRegents when there are major program changes.

EXTERNAL UNIVERSITY PANEL: A USDA Cooperative State Research, Education, and Extension Service team reviewed the UAF Cooperative Extension Service (CES) and the Agricultural and Forestry Experiment Station(AFES) and the University of Alaska Fairbank's pursuit of the land grant mission. The review was conducted on September, 2007.Recommendations by the USDA/CSREES team to administratively place CES under the Provost reporting through a Vice Provost for Outreach/Director of Cooperative Extension were submitted to the University of Alaska Board of Regents for approval. With the Regents acceptance and endorsement of the recommendations, an Interim Vice Provost/ Director is serving in the position during an on-going search.

Review recommendations noted an active and engaged CES state advisory council, dedicated staff and faculty, but saw the need for increased integration of Extension into UAF through the use of joint appointments where appropriate to increase the synergy between research and outreach. The review pointed to the need for better marketing and consistency in branding to enhance the visibility of Extension. The CES state advisory council continues to assist in the transition, while the university has provided additional resources and incremental budget requests to the state legislature to reinvigorate outreach and engagement for the university to fulfill its land grant mission. The CSREES Review team commended the AFES for its strength in support of the land grant mission of UAF and strongly recommended that joint appointments be put in place wherever possible. CES and AFES began this process during this reportingyear and continue to work toward increasing joing appointments through UAF.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- 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

SNRAS/AFES continue to meet with regional audiences around the state in both formal and informal settings. Mat-Su Potato and Vegetable Growers Conference held jointly with CES provided a venue to present research and discuss future directions with producers. Delta Farm Forum sponsored by CES with participation from AFES was an opportunity to discuss research results with producers and agency representatives as well as plan future directions.Greenhouse Growers Annual Conference held jointly with CES provided a venue to present research and discuss future directions with producers. Kawarek Reindeer Herders Association annual meeting is used to discuss joint research and outreach within the formal Memorandum of Understanding that has been in place for 21 years.Alaska Northern Forest Cooperative is jointly sponsored by the AFES, Alaska Division of Forest Service and the US Forest Service, State and Private Forestry to engage with harvesters and processors through presentations, workshops, and field trips at biannual meetings, and through their website. Alaska Alternative Livestock Producers is a forum for discussion of research in Alaska and up-to-date information from outside of the state. These meetings are focal points for listening and receiving input from stakeholders. As required by the AREERA of 1998, and in cooperation with the Cooperative Extension Service, they are advertised as broadly as possible and identified as points of contact for public input into research and extension program development.

Extension hosts a variety of Agricultural and Horticultural workshops, conferences and events. Extension invites stakeholders to serve on planning committees for conferences and identify conference topics or speakers. Extension uses post meeting evaluations to determine topics of greatest interest to determine future programming.

Agents, staff and the IPM instructor talk about invasive plants and pest issues at a variety of conferences, workshops and public gatherings involving traditional stakeholders.Input comes from an advisory group of farmers, primarily from the Mat-Su Valley and Delta areas.

Four 4-H district newsletters inform members and parents about upcoming events using listservs for news on events to registered members. Surveys are also included in newsletters and e-mails. Home, Health and Family Development classes are advertised through news releases in local newspapers, newsletter announcements, radio/television advertisements, invitations to stakeholder groups and announcements to the general public and State Fairs. The Natural Resources program addresses stakeholder needs for science-based information about natural resource issues in forestry, mining, water and rural communities through surveys and focus groups.

2(A). A brief statement of the process that was 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

The list of stakeholders for SNRAS/AFES reported in the 2006 Annual Report did not change from that in 2007. The SNRAS/AFES Board of Advisors provides overall input and advocacy. Other major stakeholders include state, federal, and community agencies and organizations that have a vested interest in the five planned program areas specific to AFES in this 2007 Plan of Work. These are the Fairbanks North Star Borough, Matanuska-Susitna Borough, Alaska Northern Forest Cooperative, USDA/NRCS, USDA/ARS, US Forest Service, Fairbanks Economic Development Corporation, and industries involved in food, fiber, and fuel/energy production including the Cold Climate Housing Research Center located on the UAF campus, Chena Hot Springs Resort, the Kawarek Reindeer Herders Association, the Alternative Livestock Producers Association, Alaska Berry Growers, and Alaska Northern Forest Cooperative. The latter list continued to expand in areas of research and outreach pursued and reported in this 2007 Annual Report.

CES has specifically identified stakeholder individuals and groups in the following planned program areas:

Agriculture and Horticulture encompasses a diverse group of stakeholders ranging from ranchers and other livestock producers to gardeners, greenhouse and landscape operations and homeowners. A number of stakeholders never contact Extension directly so television spots, public service announcements and newspaper columns written by agents reach out to these other potential stakeholders.

Invasive Weeds, Noxious Plants and Pest Management stakeholders that benefit from services are farmers, home gardeners, greenhouses, garden centers, tree services and nurseries, property managers, public health organizations, arborists and public agencies. Extension also tries to reach nontraditional stakeholders.People know to call and technicians, staff and faculty also try to make themselves available at public events, such as fairs,to answer questions.

4-H identifies its stakeholders as registered 4-H members, parents and other interested parties. Many district 4-H leader groups encourage feedback. Depending on the event, 4-H targets information to specific groups, including agricultural or livestock producers, Master Gardeners and homeschool groups.

The Sustainable Individuals, Families and Communities area seeks input from advisory committees, working with agency, community, and workforce groups.

Natural Resource Stewardship faculty identify emerging natural resource issues and develop strategies to provide information to assist in understanding the issue to make informed decisions, with stakeholders changing as issues change.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of the general public
- Meeting with invited selected individuals from the general public

Brief Explanation

The SNRAS/AFES meetings and workshops held during the reporting period and detailed previously were scheduled around themes and to gather specific information. The information generated from all was collected primarily from electronically available presentations and notes taken during dialogue and incorporated into our outcomes assessment file that we keep for updating the SNRAS/AFES Strategic Plan that is used for ongoing strategic planning of research and outreach programs. SNRAS/AFES continued to solidify its feed-back loop process that provides information to researchers and outreach programs and from research and outreach programs to stakeholders and individuals. We are linking this effort with the annual outcomes assessment and annual reporting process required of all schools and colleges in the UAF system.

CES has specifically identified stakeholder individuals and groups in the following planned program areas:

Extension collects Agriculture and Horticulture stakeholder input through surveys following conferences and workshops, by e-mail surveys, and through public presentations made to a variety of groups and agencies. Input is also collected individually by agents who work with stakeholders and through advisory groups.

Extension collects stakeholder input in Invasive Weeds, Noxious Plants and Pest Management through surveys following conferences and workshops, by e-mail, and through public presentations made to a variety of groups and agencies.

Youth development comments are taken at meetings, in e-mails and phone calls as well as during trainings, fairs or other events.Agents distribute surveys after events and questionnaires are included in newsletters. Sometimes input is collected one-on-one. Agents ask kids involved in activities what other activities they might like to do.

Sustainable Individuals, Families and Communities: Each district agent has an advisory group that helps set the programming for each district.It works differently in each district. In some cases, the groups are made up of individuals; in others, representatives of different agencies are members. Each district has a functioning advisory group that plans, supports and implements the program.

Natural Resource Stewardship: Stakeholder input is collected during visits to communities, through phone calls or e-mails by citizens. Sometimes stakeholder comments or concerns come from other agencies.

3. A statement of how the input was 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

The SNRAS/AFES joint research and outreach planned programs are directly related to the SNRAS/AFES Strategic Plan that was produced by faculty of SNRAS and AFES. The Plan reflects the ideas and advice given by SNRAS and AFES client user groups, students, the board of advisors, expert advisors, state and national peers and cooperators, and UAF administration. During the 2007 reporting period the four focus areas of energy, climate change, local and regional food production and food safety and the need for adult and youth education and training to fill Alaskan job and career demands began to emerge. These focuses will be used to set priorities in meeting the many needs for knowledge about Alaska and circumpolar resources and geography. Input was considered in the budget process. Formula funds will be used in response to research needs based on the four emerging focus areas. A newly hired faculty in the planned program area of Management of Ecosystems is involved in climate change research.

Agriculture and Horticulture: Comments from surveys following classes, conferences or workshops help determine the need for or direction of future classes. Surveys also provide feedback to the presenter on how useful the information was to stakeholders. Individual calls from the public also determine what subjects and topics are sought for future classes or workshops.

Invasive Weeds, Noxious Plants and Pest Management: The 14,000 contacts a year made by the Integrated Pest Management Program establishes what the current pest issues and concerns are, whether it’s birch leaf miners or a bad bee season.

Youth Development: Sometimes a suggestion has generated new volunteers, who are willing to help offer the requested program. Other times, requests lead to new programming. Requests come from parents or from kids. A request from a kid from a rural area led to doubling the size of the 4-H camp in Wasilla to accommodate rural children whose parents were deployed by the Alaska National Guard.

Sustainable Individuals, Families and Communities: Thisis a grass roots-driven program.Agents use the stakeholder input to identify programming needs and work to offer programs and information that meets that need.An example of meeting stakeholder needs has been the program’s recent focus on health-related programming.

Natural Resource Stewardship: Input often leads to programming addressing those needs. For instance, contacts in Bethel informed the agent of concerns in the Yukon-Kuskokwim delta communities about proposed mining development. During the past two years, Extension co-sponsored 18 village workshops on mining and community values.The high cost of heating in rural areas led to a request for a market analysis for a firewood harvesting enterprise.

Brief Explanation of what you learned from your Stakeholders

The overarching message SNRAS/AFES received during the reporting period was the need for research addressing energy, climate change and regional and local production of food and food safety that is specific to Alaska. Stakeholders conveyed the message that the linkage of extension and outreach is critical to keep them well informed and provide them with a portal for communication. On an individual basis, faculty in AFES continued to adjust their research within institutional constraints based on stakeholder input received. Some examples are an increased focus on reindeer meat quality, the inclusion of energy crops in agronomic field research, expansion of research considering structures to extend the growing season, increasing community and UAF relationships in planning for sustainable communities, and addressing the systems approach, including transportation, in product processing and movement around and outside Alaska.

Agriculture and Horticulture: We learned from our stakeholders what concerns they have and how we might provide programming for them or information to use. The livestock specialist learned during a workshop that cattle producers in the Homer area had a problem with calf mortality, for instance.

Invasive Weeds, Noxious Plants and Pest Management: Discoveries of pests reported by public and producers tell pest scouts and staff what concerns are out there such as last summer's sudden appearance of moths in Fairbanks or the spread of birch beetles. Extension has learned the value of Master Gardeners as a resource for "first detectors" for pests. Working with Alaskan crop producers has helped define Extension's focus in the pest management area.

Youth Development: Kids want opportunities to be able to meet each other across the state. During the 4-H Youth Forum last year, kids expressed a desire to meet and connect with other kids. During a February meeting, they created a State Teen Council. Distances and geographic isolation make intra-district events difficult.

Sustainable Individuals, Families and Communities: Our stakeholders were interested in more health, energy and family finance programming.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
1040478	0	1705903	0

2. Totaled Actual dollars from Planned Programs Inputs

	Extension		Research	
	Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
Actual Formula	1165391	0	1228291	0
Actual Matching	1165391	0	1612846	0
Actual All Other	2822269	0	3507764	0
Total Actual Expended	5153051	0	6348901	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years

Carryover	845961	0	0	0

V. Planned Program Table of Content

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agriculture and Horticulture

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		10%	
205	Plant Management Systems	40%		40%	
213	Weeds Affecting Plants	5%		5%	
216	Integrated Pest Management Systems	5%		5%	
302	Nutrient Utilization in Animals	15%		15%	
307	Animal Management Systems	10%		10%	
308	Improved Animal Products (Before Harvest)	10%		10%	
601	Economics of Agricultural Production and Farm Management	5%		5%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	8.0	0.0	1.5	0.0
Actual	8.0	0.0	0.0	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
278303	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
278303	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
507993	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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.

2. Brief description of the target audience

Commercial vegetable growers

Organic vegetable growers

Commercial greenhouse operators, including chain stores

Commercial nursery operators, including chain stores

Greenhouse owners for home consumption

Community gardeners

Home gardeners

Commercial livestock producers

Livestock owners for home consumption

Horse owners

Forage growers

Forage consumers

Youth and 4H

Policy makers

V(E). Planned Program (Outputs)

1. Standard output measures

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

Year	Direct Contacts Adults Target	Indirect Contacts Adults Target	Direct Contacts Youth Target	Indirect Contacts Youth Target
Plan	3400	16000	4800	6500
2007	16108	336520	426	14415

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	11	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	100	72

Output #2

Output Measure

- 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.

Year	Target	Actual
2007	1500	2317

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Outcome target 1: Increase crop producers' knowledge of food production practices in Alaska.
2	Outcome target 2: Increase livestock producers' knowledge of food production practices in Alaska.
3	Outcome target 3: Increase crop producers' understanding of optimum production practices.
4	Outcome target 4: Increase livestock producers' understanding of optimum production practices.
5	Outcome target 5: Increase crop producers' ability to assess their own production practices.
6	Outcome target 6: Increase livestock producers' ability to assess their own production practices.
7	Outcome target 7: Increase crop producers' application of optimum production practices.
8	Outcome target 8: Increase livestock producers' application of optimum production practices.
9	Outcome target 9: Increase crop producers' production by five percent on a per farm basis over five years or less.
10	Outcome target 10: Increase livestock producers' production by five percent on a per farm basis over a five year or less.
11	Outcome target 11: Increase crop producers' economic viability on a per farm basis as measured by net farm income over five years or less.
12	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.
13	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.
14	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.
15	Outcome target 15: Individuals who participate in educational activities related to community and home gardening will apply the techniques they learn.
16	Outcome target 16: Individuals who participate in educational activities related to small-scale livestock production will apply the techniques they learn.
17	Outcome target 17: Commercial horticultural producers (greenhouse growers, nurseries, landscapers, garden centers, and other commercial horticulture operations) will increase their productivity.
18	Outcome target 18: Commercial horticultural producers (greenhouse growers, nurseries, landscapers, garden centers, and other commercial horticulture operations) will increase their economic viability.
19	Outcome target 19: Alaska's dependence on imported food will decrease by one percent annually (target measure is 'percent').

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	250

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska imports about 95 percent of its food supply and with increasing transportation costs, commercial agriculture may become more viable for small- and medium-sized crop producers in the state. Constraints include a short growing season, isolation from other producers and markets and high transportation costs. A need exists for educational support and expertise for producers to help make their operations more economically viable.

What has been done

CES agriculture and horticulture agents host a variety of conferences and events for producers:
During the Sustainable Agriculture Conference and Organic Growers School, presenters talked about organic certification, farm management, cut flowers for export and the latest production recommendations.
Growers attending the Alaska Greenhouse and Nursery Conference learned more about nursery production, marketing, integrated pest management in greenhouses and new annuals and perennials.
The Delta Farm Forum offered presentations by the Alaska Division of Agriculture and the Alaska Farm Service Agency as well as updates on the latest area farm research.
The Agricultural Gathering showcases the current research projects in the Delta Junction area. Highlighted projects included foxtail barley control in grass fields, fish meal fertilizer study, canola trials and cereal grain pots and a shrub control project in CRP.
The Harvest Wrap-Up brings researchers together with Delta area farmers to discuss success and failures of the past crop season.
Speakers at the 2007 Alaska Potato and Vegetable Conference talked about potatoes and vegetable topics, including white mold, pesticide regulations, microbes, native viruses, a rhubarb processing plant update, seed exports and viruses, marketing and soils.

Results

About 70 people attended the Sustainable Agriculture and Greenhouse conference. Producers connected with each other and learned new techniques, research and tips from other producers and experts. Evaluations from 41 attendees of the Sustainable Agriculture conference said that farm management, crop rotation, crew management and available local resources were topics found most useful.

The Potato and Vegetable Conference drew more 34 attendees for the Potato Day and 27 for the Vegetable Day. Evaluations from 61 participants indicated nutritional and health topics were useful, expressed an interest in the physiological aging of potatoes and wanted to hear more about direct marketing.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
213	Weeds Affecting Plants
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	250

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Improving livestock producer knowledge is important because the information will help improve their herd health, the quality of the product and the viability of livestock operations. Improving producer knowledge also impacts the people who buy Alaska-produced meat, milk and fiber products because they receive a better product. Improved livestock operations also could provide an economic benefit to the communities in which livestock producers reside.

What has been done

The Extension livestock specialist continues to develop and update 22 animal science-related Extension workshop modules. He has taken these modules on the road as workshops in the Winter Animal Science Series. During the past year, he presented workshops at Delta, Fairbanks, Homer, Kenai and Palmer attended by 250 producers and 4-Hers. Topics included animal nutrition, genetics and animal breeding, reproductive physiology, physiology of lactation, environmental physiology, ethology, animal behavior, animal welfare and well-being.

The livestock specialist also organized and moderated four statewide teleconferences for livestock producers and veterinarians. Eighty producers participated in these exchanges about livestock diseases and herd management.

Livestock specialist co-authored a chapter on reproductive management in reindeer for Large Animal Theriogenology, a text that is used in every veterinary school in the United States and Canada. This is the first time any text has included this type of information on reindeer.

Results

Between the Winter Animal Science Series and the teleconferences with veterinarians, more than 250 producers and 4-Hers learned information about livestock diseases, nutrition, breeding, and animal well-being. (Several producers participated in more than one workshop.) These workshops further the knowledge of producers toward optimum care of livestock and their health. Better livestock health contributes to a better product and will make livestock operations more economically viable.

Publishing the chapter on reproductive management in a veterinary text will help produce veterinarians with some knowledge of reproduction in this species.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
307	Animal Management Systems
302	Nutrient Utilization in Animals

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is hoped that educational opportunities and research-based practical advice offered to producers will help new producers enter the market and improve the economic viability of other operations.

What has been done

The Anchorage agent helped refugees grow and sell vegetables for a farmers market. Participants met with the agent 15 weeks for indoor classes and then continued hands-on work in a large garden. Source of funding: Smith-Lever 3b&c and USDA Risk Management grant
A Palmer-based horticulture specialist has made presentations to a variety of agricultural and horticultural groups extolling the hoop house ability to extend the short northern growing season. The horticulture specialist is also conducting research on the engineering and heat capturing capability of two different-sized hoop houses.
Following UAF Agricultural and Forestry Experiment Station faculty research and presentations at Extension-hosted Alaska Greenhouse and Nursery conferences, more than two dozen producers have become interested in cut flower peony production, potentially a high-valued export crop. An estimated 10 acres are under production with many more acres to be planted within the next few years.
Agricultural and horticultural agents work with producers across the state, answering questions by phone and providing on-site support. Through the EQIP program in Delta, the agriculture agent spent 200 hours working with NRCS and agricultural producers, developing pest and nutrient management plans.

Results

By the end of the season, the Hmong refugees had sold more than $6,000 worth of vegetables and they want to garden again this summer. The agent is considering a more advanced class for these gardeners. In addition to learning gardening, participants increased English skills and improved their marketing and business skills.

More vegetable and small fruit producers extended their 2007 growing season with hoop houses and were able to sell more produce at farmers markets. In every district, people are planning to build or have hoop houses.

Because it takes at least three years for peonies to mature to the point of harvest, the success of this enterprise can only be measured in plant establishment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
205	Plant Management Systems
216	Integrated Pest Management Systems
102	Soil, Plant, Water, Nutrient Relationships

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	250

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Because of climate considerations and geographic isolation, Alaska does not have a large livestock industry. Livestock includes beef and reindeer with small numbers of dairy cattle, goat, sheep, yak and musk oxen. There are a large number of horses in areas along the road system, although there is essentially no self-supporting horse production operations in the state. Since Extension has only one livestock specialist, few opportunities exist for the education of producers. Increased education translates into more commercially viable operations and better herd health.

What has been done

Extension livestock specialist presented workshops in five communities attended by 250 producers and 4-Hers. Topics included animal nutrition, genetics and animal breeding, reproductive physiology, physiology of lactation, environmental physiology, ethology and animal behavior, animal welfare and well-being. The livestock specialist also organized and hosted four statewide teleconferences for livestock producers and veterinarians. In addition to these educational efforts, the livestock specialist devoted 200 hours last year to answering individual producer questions. The help was offered to 160 producers, who contacted the livestock specialist by phone, e-mail, or walked into Extension offices. Help was also offered on site at producer operations.

Results

The livestock workshops further the knowledge and understanding of producers toward optimum care of livestock and their health.

Pretests were administered before and and posttests were administered after these classes in all locations and mean test score show increased understanding in each of the following subject matter areas:

Animal nutrition, 28.8 percent in the pretest, 84.7 percent in the posttest.

Animal reproduction, 19.1 percent in the pretest to 76.4 percent in the posttest

Animal lactation, 9.2 percent in the pretest to 71 percent in the posttest

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
302	Nutrient Utilization in Animals
307	Animal Management Systems

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	40	170

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The 2002 Farm Bill has brought many Alaskan farmers into Natural Resources Conservation Service (NRCS) field offices to seek participation in programs such as EQIP. Nutrient and pest management conservation practices are two components of most EQIP long-term contracts that require the assistance of Extension to provide nutrient recommendations, pest scouting, and Integrated Pest Management recommendations. This has increased producer interest in the management of nutrients and pesticides.

What has been done

CES had an agreement to assist with the delivery of technical assistance associated with conservation cost-share programs of the Natural Resources Conservation Service in its Delta, Fairbanks, Palmer, Soldotna and Homer Alaska field offices. The Extension Service assisted NRCS in providing technical assistance associated with the implementation of the nutrient and pest management conservation practices as scheduled in EQIP long-term contracts.

Results

Through this project, 170 EQIP participants/farmers applied pesticides and nutrients at the specified rates and were educated in weed identification and soil sampling techniques. EQIP participants maintained field notes records necessary for participation in the NRCS-administered EQIP program and improved soil and water conservation. The program provides incentives to producers/land owners for improving their roles in environmental stewardship.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems

Outcome #6

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	40	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increased education of producers as well as contacts with the livestock specialist will improve producer abilities to assess their own production practices and will improve production capabilities and animal health and well-being.

What has been done

The Extension livestock specialist presented a series of workshops in five communities with the largest livestock populations nearby. These were attended by 250 producers and 4-Hers who learned about animal nutrition and breeding, lactation, animal behavior, physiology and animal welfare and well-being.The livestock specialist also organized and hosted four statewide teleconferences for livestock producers and veterinarians.

The livestock specialist, in addition to offering educational opportunities to livestock producers, consults with them individually. During the past year, he responded to 160 clients by phone, e-mail, visits to Extension offices and on-site visits to their operations. He recorded 200 hours of work in this area.

Results

Through multiple contacts with producers, the livestock specialist has become aware of challenges Alaska livestock producers face. He gives them the understanding and tools to improve their operations, sometimes troubleshooting on site. Helping producers solve their problems increases their ability to assess their production practices in the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
302	Nutrient Utilization in Animals
307	Animal Management Systems

Outcome #7

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Working directly with producers to implement research-based solutions to production challenges will enhance production, environmental stewardship and the economic viability of operations. Several agricultural areas have sulfur as a limiting factor in their soils.

What has been done

Extension initiated sulfur-deficiency trials on the Kenai Peninsula in 1996 and subsequent long-term educational outreach followed. The impacts of these efforts resulted in forage grass growers adopting sulfur-enhanced fertilizers as their standard. Testing crops for sulfur deficiency continues on the Kenai.
The Delta agricultural agent helped a forage crop farmer with fertilizer recommendations. The agent has also been working with this farmer and the Salcha-Delta Soil and Water Conservation District to measure whether any nitrates have been escaping into the groundwater and a nearby salmon spawning habitat.
The Cooperative Extension Service assisted NRCS in providing technical assistance associated with the implementation of the nutrient and pest management conservation practices as scheduled in Environmental Quality Incentives Program long-term contracts with producers.

Results

Recommendations from the sulfur-deficiency trials continue to gain acceptance by Kenai Peninsula hay producers, often doubling and tripling yields with the addition of 30 to 80 pounds of sulfate sulfur per acre, respectively, while reducing nitrogen levels up to 1000%. Until recently, when escalating oil prices have driven the fertilizer costs to record highs, this also led to increased economic viability as measured by increased net farm income.

No nitrates from the fertilizer the Delta farmer has been using have escaped into groundwater and the farmer has doubled his yields.

Through the EQIP program, 170 participants/farmers applied pesticides and nutrients at the specified rates and were educated in weed identification and soil sampling techniques. EQIP participants maintained field notes records necessary for participation in the NRCS-administered EQIP program and improved soil and water conservation. The program provides incentives to producers/land owners for improving their roles in environmental stewardship.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

General livestock education will increase the knowledge of livestock producers, hopefully improving their operations and their ability to apply optimum practices. This should lead to increased profitability as problems that require veterinary care decrease and production is optimized.

What has been done

The livestock specialist, in addition to offering educational opportunities to livestock producers, consults with them individually. While working with cattle producers in southcentral Alaska, the livestock specialist became aware that calf death losses during the neonatal period were high. Since many regions of Alaska are selenium deficient, he suggested that producers place SE TM salt blocks on their grazing lease for consumption by pre- and postpartum cows.
A dairy farmer near Delta Junction indicated that his cows were experiencing a 50 percent rate of milk fever during the paripartum period. The livestock specialist realized that the producer was feeding a high calcium mineral during the dry period. He suggested that the producer replace that mineral with one that was similar except for reduced calcium.

Results

Since producers in Southcentral added the selenium salt blocks in the spring of 2005, this group of 10 livestock producers has not lost a single calf for unknown reasons. In livestock production, successful reproduction is paramount to financial success and this simple change for these producers has benefitted these producers by the increased number of steers that survive and the increased number of replacement heifers for their herds.

The dairy farmer followed the livestock specialist recommendations and no milk fever cases have been reported since October 2006. The producer feels that the number of retained placentas in his herd has declined dramatically. Both of these problems were likely the result of cows not being able to turn on the physiologic mechanism responsible for mobilizing the large amount of calcium needed for muscle function and concurrent milk production in high-producing cows. Milk production among fresh cows has increased, likely increasing profitability along with reducing costs that were associated with treating sick cows.

Resolving these problems contributed to the producer ability to deal with these issues in the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
302	Nutrient Utilization in Animals
308	Improved Animal Products (Before Harvest)

Outcome #9

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Producers rely on Extension to help them face production challenges. One challenge has been the limiting factor of sulfur deficiency.

What has been done

Following Extension-initiated sulfur deficiency trials in 1996 and educational outreach, the Kenai Peninsula forage grass growers adopted sulfur-enhanced fertilizers as their standard. The accepted timothy hay fertilizer standard among those producers is 400 pounds of 20-10-10-8 fertilizer per acre. Testing crops for sulfur deficiency continues on the Kenai.
A favored lettuce variety used by two major Palmer vegetable producers was dropped by the seed company. The producers have adopted a newly recommended variety of lettuce based on horticulture specialist trials undertaken on area farms. The variety, Sniper, has shown consistently good yields and high quality.

Results

Neither Extension nor the state has measured production on a per farm basis, so it is impossible to point out exact numbers. We do know that hay farmers in the Delta and Kenai areas have increased production due to following fertilizer recommendations to counteract sulfur deficiency. Hay producers who follow recommendations from the sulfur deficiency trials on the Kenai Peninsula often double and triple yields with the addition of 30 and 80 pounds of sulfate sulfur per acre. However, the rising cost of fertilizers and petroleum products have negatively impacted farmers.

4. Associated Knowledge Areas

KA Code	Knowledge Area

205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Improving producer practices and the ability to problem solve on their own should make operations more productive.

What has been done

Several educational and consultation efforts led by the livestock specialist should contribute to improving livestock production, but neither Extension nor the state of Alaska has measured individual production of operations so it is not possible to give this statistic. The livestock specialist knows of a few situations in which particular operations have increased their productivity by solving problems.

Recommendation to add selenium blocks to grazing land in Homer solved calf mortality problems for a group of 10 cattle producers in that area.

A recommendation to lower calcium supplements led to eradicating a milk fever problem affecting a Delta dairy herd. Milk production also increased.

Results

The work of the livestock specialist has led to increased production but Extension has not tracked the individual productivity of farms. Since Extension has one livestock specialist who is shared with the Experiment Station, we lack staffing to track numbers of this kind.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Improving producer practices should make operations more economically viable.

What has been done

A variety of conferences, workshops and other educational opportunities bring producers together and help provide the support and knowledge to improve the economic viability of their operations.

Results

Alaska Extension does not have an agricultural economist and Extension does not currently measure the per farm profitability of operations. It is presumed, however, that that 20 hay farmers on the Kenai who followed Extension recommendations for fertilizing to combat sulfur deficiency, will increase the economic viability of their operations because yields have doubled or tripled (over original fertilizer regimes).

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #12

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Improving producers practices and the ability to problem solve on their own should make operations more economically viable.

What has been done

Alaska Extension does not currently track the economic viability of individual farms, so even estimating this number is impossible. It is reasonable, however, to assume that improved understanding of livestock practices and challenges will lead to improved economic viability of producer operations.

In two instances, however, producer operations have become more profitable:

The livestock specialist recommended the placement of selenium salt blocks on producers grazing lease near Homer, which solved a troubling calf mortality problem.

A dairy farmer near Delta Junction indicated that his dairy cows were experiencing a 50 percent rate of milk fever (parturient paresis) during the paripartum period. Looking at rations and food regimes, the livestock specialist realized that the producer was feeding a high calcium mineral during the dry period. He suggested that the producer replace that mineral with one that was similar except for reduced calcium.

Results

Solving the calf mortality problem in Southcentral improved the profit margin for 10 livestock producers.In livestock production, successful reproduction is necessary for financial success. The simple change of adding selenium blocks to grazing lands has benefited these producers by the increased number of steers that can be grown out and the increased number of replacement heifers for their herds.

The dairy farmer followed the livestock specialist recommendation and no milk fever cases have been reported since October 2006. The producer feels that the number of retained placentas in his herd has declined dramatically. Milk production among fresh cows has increased, likely increasing profitability along with reducing costs that were associated with treating sick cows. All this adds up to an improved financial situation for the producer.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
307	Animal Management Systems
302	Nutrient Utilization in Animals

Outcome #13

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	140

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Home horticulture in many cases is Alaska's subsistence agriculture. Gardening is one of the state's most important summer-time activities followed by food preservation to maintain the high quality of food produced and to maintain it throughout the winter months. As transportation and fertilizer costs rise, food prices are also expected to increase and more Alaskans are expected to show an interest in gardening to help stay within their food budget. Most of our horticultural educational outreach emphasis is targeted toward the home gardener. Our Master Gardener training, which offers a well-rounded introduction to Alaska gardening, is probably the most supportive endeavor we offer the industry (semi-trained labor force), outside of our pest management assistance. Some of the participants in Extension home gardening classes have used the information to become commercial producers.

What has been done

Alaska Extension offers a number of short and longer term gardening classes that teach information that could be applied to small-scale agricultural production.
About 100 gardeners in Fairbanks, Kenai and Anchorage participated in the 2007 Master Gardener program. Master Gardeners may continue their education by attending an annual statewide Master Gardener conference.
The Anchorage agriculture agent taught 15 weekly classes about gardening to refugees in a program aimed at helping them learn business skills through growing and selling vegetables.
A rural outreach was undertaken by the Sustainable Agriculture agent, who, operating with a USDA grant, had a goal of determining local preferences and crop success for common cold-hardy crops, and to conduct trials on the viability and winter survivability of certain berry crops. Another outcome of the grant was to develop economic models for small-scale production of potatoes and domestic raspberries. Six villages agreed to participate in the project and to provide volunteers to prepare, plant and tend the gardens, and to collect data on plant productivity and winter survivability (for berries). Source of funding: USDA special grant

Results

Although some participants in gardening workshops have later started small-scale commercial operations, the exact number is not known because Extension has not measured this. Agents know of Master Gardeners who have started commercial operations.
Of 56 participants in a Kenai Master Gardening class, 32 returned evaluations with these results: 25% changed their garden planning, 22% changed their varietal selections, 25% changed the design of their growing beds and 31% changed their liming and/or fertilizing rates.
Eighteen gardeners attended two hot composting classes offered on the Kenai Peninsula last summer. Ten completed evaluations with these results: 89% learned new information about composting, 70% improved their composting techniques. After completing the class, 40% purchased or built composting equipment and 70% started development of a compost plan for the following year.
After taking an Anchorage composting class in November 2006, 12 of 15 participants returned evaluations nine months later, with these results: 75% composted waste materials the following summer and 78% utilized what they learned in class to successfully change the way they composted.
Five refugees successfully raised $6,000 worth of vegetables that were sold at Anchorage farmers markets.
The village gardening project had mixed results. While the project was implemented well, agent discovered that villagers were primarily interested in personal use gardening as a means to supplement subsistence foods. There was virtually no interest in gardening as small-scale agriculture.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships

Outcome #14

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

All Alaska livestock producers are small-sized operations based on the USDA definition of small, medium or large farms. Principles learned by small-scale livestock operators, such as by a 4-Her or a producer with a small operation, also apply to a larger operation if the small operator chooses to grow.

What has been done

4-Hers and small-scale livestock producers also participate in educational workshops offered by the livestock specialist in a variety of communities.

The livestock specialist also teaches a 15-week university-level class in animal science, which uses distance teaching technology to offer the class in Palmer and in Fairbanks. Because of his background in livestock agriculture, the livestock specialist brings practical problems from the farm to the classroom. He also takes students out to producer farms where they hear of problems and successes first-hand.

Results

The students receive practical solutions from the producers themselves, and they also become aware of how producers rely on the land grant university and how the university serves the livestock producers. Gaining this knowledge will help these students in the future with their own operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

Outcome #15

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	145

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Extension has offered a variety of gardening classes and the value of the classes depends in large part on whether participants use techniques that they were shown. The best way to learn something is to include a hands-on element to the training.

What has been done

Alaska Extension offers a number of short and longer term gardening classes include hands-on components: Master Gardener program classes include a hands-on component. Participants also are required to provide 40 hours of volunteer time by providing gardening information to others, including a demonstration of what they have learned. The volunteer time is dedicated to home garden visits, teaching basic gardening classes, and working with youth and adult groups interested in gardening. About 100 Master Gardeners completed the course in Alaska during the past year.
Two 12-hour applied hot composting classes offered by the Soldotna agent to 19 participants were entirely hands-on classes.
The Anchorage agriculture agent taught 15 weekly classes about gardening to refugees. Five participants (and additional family members) practiced these skills by planting and raising vegetables for farmers markets.

Results

Evaluations returned after a Kenai/Soldotna Master Gardening class indicate that students made a number of changes based on the information they learned. One-fourth of those who responded changed their garden planning, varietal selections, the design of their growing bed and how they managed their gardens.
After completing the hot composting classes, four out of 10 participants who filled out an evaluation had purchased or built composting equipment and five started to compile materials to compost. Seven had started developing a compost plan for the following year.
The Anchorage agent surveyed participants of her composting class nine months later and of 12 participants who returned evaluations, 75 percent had composted the following summer.
After a gardening series in Anchorage, the agent surveyed participants after the next growing season and found that of 10 who filled out the survey, five had used plastic mulch for soil heating and weed control and two had used garden placement to enhance yields. Five used seed starting and cultivar selection information to enhance results.
Gardening projects in rural, mostly Alaska Native communities, have encouraged community gardens and gardening skills. Potatoes were planted in the spring in one village and the school-aged kids harvested them at the start of school. Three other rural communities developed community gardens as result of the Fruit and Berry trials and program through the Sustainable Agriculture agent work. Source of funding: USDA special grant

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems

Outcome #16

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	30	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Extension hopes that providing education through small classes and other educational opportunities will lead to applying techniques they have learned and thus improving their herd health and their operations.

What has been done

More than 200 small producers, including 4-Hers attended a series of workshops offered by the livestock specialist in five communities. Topics included animal nutrition, genetics and animal breeding, reproductive physiology, physiology of lactation, environmental physiology, ethology, animal behavior, animal welfare and well-being. Several livestock problems were raised by participants and the livestock specialist offered research-based solutions to those producers.

About 80 producers participated in four teleconferences with veterinarians who discussed animal health and disease management.

Results

One yardstick on whether producers apply what they have learned is that they show an understanding of the topics offered in classes. Producers show that they understood the concepts presented in three classes through surveys undertaken before and after:

Animal nutrition, 28.8 percent in the pretest, 84.7 percent in the posttest.

Animal reproduction, 19.1 percent in the pretest to 76.4 percent in the posttest

Animal lactation, 9.2 percent in the pretest to 71 percent in the posttest

Livestock specialist has followed up with some producers to find whether the solutions offered have been successful. The livestock specialist became aware of the calf mortality problem through one of these workshops and followed up with recommended solution.

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
302	Nutrient Utilization in Animals
307	Animal Management Systems

Outcome #17

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agriculture in Alaska is a small industry that operates in a limited number of diverse regions in the state. These regions are separated by long distances, differ in climate, soils, and topography, and naturally vary in crop adaptation and the mix of crops and livestock produced. Farm size is small, agricultural infrastructure is poorly developed, the cost of inputs is high, and, in geographically isolated areas, market access and availability of production information from agricultural professionals is limited.

On the positive side, Alaska produces a small amount of the food consumed here, so there is room for the market to grow and in many areas there is an increasing demand for locally produced food. Restricted availability and high cost of outside inputs also provides a favorable climate for adoption of sustainable agricultural practices where there is an emphasis on the importance of maximizing use of on-farm and locally available input substitutions. Access to educational opportunities is decreased in Alaska because of the distance from the educational infrastructure of the Lower 48 states. There is a real need to improve communication between professionals and provide access to information.

What has been done

Two conferences, in particular relate to the horticulturalists: The Alaska Greenhouse and Nursery Conference and the Sustainable Agriculture Conference and Organic Growers School.
Conference topics at the 2007 SARE conference included running a family organic farm, fertility management, organic certification, farm management and finances, an update on peony farming for export markets, integrated pest management in Alaska, weed control and equipment needs.
The 26th annual Alaska Greenhouse and Nursery conference was aimed at greenhouse and nursery operators, as well as gardeners. Growers learned more about nursery production, marketing, integrated pest management in greenhouses and new annuals and perennials. During the 2007 conference, an AFES researcher reported on the tremendous potential of peonies as a high-value cut flower crop. Alaska can produce peonies when no peonies are available anywhere in the world. Extension agents have consulted with peony growers in Fairbanks, Palmer and Kenai areas.

Results

Following the 2007 Alaska Greenhouse and Nursery Conference, which 100 attended, 100 returned evaluations.
98% requested further information on the Alaska Peony Project
79% requested further information on greenhouse energy issues
96% expressed further interest in Alaska Grown and cooperative marketing
100% expressed further interest in bio-controls for greenhouse applications
Peonies are not harvested for at least three years after planting so it is too early to get production results but buyers are interested when peonies do come online. Of the 31 growers who attended the 2008 Peony Conference, 10 had planted approximately 15,000 peonies and more planned to plant this year. Two of the original growers plan to increase their number of plants and 16 other growers were considering peony production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships

Outcome #18

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is hoped that educational opportunities and Extension support to producers will lead to increased economic viability.

What has been done

Two Extension-hosted conferences provide help producers, information we hope will make their operations more economically viable: The Alaska Greenhouse and Nursery Conference and the Sustainable Agriculture Conference and Organic Growers School. Additionally, the Anchorage agent offered a floral design workshop.

Conference topics at the 2007 SARE conference included running a family organic farm, fertility management, organic certification, farm management and finances, an update on peony farming for export markets, integrated pest management in Alaska, weed control and equipment needs.

During the 26th annual Greenhouse and Nursery conference in Wasilla, greenhouse and nursery producers networked with each other and got lessons in nursery production, marketing, integrated pest management in greenhouses and new annuals and perennials.

Nine attended the floral design workshop and nine returned evaluations. All said they increased their knowledge regarding the care of fresh plant materials and two indicated they would seek a business license to pursue floral design materials and employment.

Each of our agriculture agents fields calls and provides information to commercial producers, if requested. The Fairbanks agent helped 250 commercial agriculture clients, including horticulturalists, with production questions. Anchorage agent answered questions from 8 landscape and horticulture clients and the Delta agent reports 1,000 clients. Soldotna agent had 160 greenhouse and nursery clients and small farm questions.

Results

Two Extension-hosted conferences provide help for producers to make their operations more economically viable. Conference topics at the 2007 Sustainable Agriculture conference included running a family organic farm, fertility management, organic certification, farm management and finances, an update on peony farming for export markets, integrated pest management in Alaska, weed control and equipment needs.
During Greenhouse and Nursery conference, greenhouse and nursery producers got lessons in nursery production, marketing, integrated pest management in greenhouses and new annuals and perennials.
Each of our agriculture agents fields calls and provides information to commercial producers.The Fairbanks agent helped 250 commercial agriculture clients, including horticulturalists, with production questions. Anchorage agent answered questions from 8 landscape and horticulture clients and the Delta agent reports 1,000 clients. Soldotna agent had 160 greenhouse and nursery clients and small farm questions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #19

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	95	95

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska imports approximately 95 percent of its food. Because of rising transportation costs and food security issues, as well as a desire to support local production, Extension has worked with producers to increase their agriculture production and decrease reliance on imported food. Imported food is particularly costly in rural areas.

What has been done

While Extension does not measure decreases in imported food, Alaska Field Office of the USDA National Agricultural Statistics Service keeps statistics of overall production of produce sold for more than $1,000 by producers.
The Extension Indian Reservation Program helps rural and predominately Native communities to become more self-reliant. Extension improves skills and knowledge in gardening and agriculture. Classes range from pre-planting to post harvest and food preservation. Special emphasis is placed on seed starting, crop maintenance and post-harvest techniques. Fruits and vegetables are expensive and often unavailable in rural Alaska villages. Workshops were offered in five communities. Source of funding: Smith-Lever 3-d
The Sustainable Agriculture agent also worked with villages to encourage agricultural production. The goal was to determine local preferences and crop success for cold-hardy plants and to develop economic models for small-scale production of potatoes and raspberries. Six villages and communities agreed to participate in the program. Gardening equipment, fertilizer, seeds and plants were delivered to villages and greenhouses were delivered. Volunteers in the villages were to do the work. Source of funding: USDA special grant

Results

The most current statistics from the U.S. National Agricultural Statistic Service are for 2006. Potatoes are the most important Alaska vegetable crop and production rose from 166 cwt. in 2005 to 186 cwt in 2006. Mixed results were seen for other vegetables:

	2005	2006	Units
Lettuce	22.1	22.5	carton
Carrots	20.5	16.7	cwt.
Cabbage	18.1	17.6	carton
Other veg.	18.7	20.3	cwt.

Under the Extension Indian Reservation Program, Extension helped get five community gardens established and expanded. Positive outcomes included economic development by the selling of produce, a reduction of food costs to communities and an increase in daily vegetable intake.

The fruit and berry project was a mixed success. Two communities did not plant project gardens because they had no volunteers but gardening supplies were still distributed. Agent discovered that villagers were interested in personal use gardening as a means to supplement subsistence foods. Communities expressed an interest in growing gardens to provide elders with food. The project brought community gardens to Minto, McGrath and Tanacross, three communities that had wanted them but did not have the resources to develop them.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

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

Brief Explanation

Working through the Plan of Work outcomes, we discovered several measures that we do not have adequate information to report on, particularly regarding the percentage increase of livestock production and profitability per farm and the percentage increase of crop producers productivity and profitability per farm. Our interim director will revise and simplify outcomes for 2009.

The high cost of petroleum products and fertilizers are expected to impact the productivity and the economic viability of horticultural and agricultural operations in the state.

The small number of agricultural staff working for Extension, the geographic distances between communities and high transportation costs involved in traveling to communities off the road system all present challenges to Extension, which tries to provide a supporting role for horticultural and agricultural production in the state.

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

1. Evaluation Studies Planned

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

Evaluation Results

As a first-year reporting effort under the new five-year Plan of Work, it is obvious that we need to improve our evaluation techniques regarding the capture of programmatic efforts and impacts. Most of our agriculture agents do evaluations after an event for recording impacts but our livestock specialist does pre- and posttest surveys to determine what participants in his workshops learn. Most of our surveys are completed at the end of workshop or conferences, but in one case an agent conducted a survey nine months after a composting class, to determine whether participants used information they were taught during the growing season. We are learning through surveys what impacts our clients and what areas interest them for future programming.

All of our agents used surveys after our major conferences and most agents regularly surveyed following individual classes.

Key Items of Evaluation

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Invasive Weeds, Noxious Plants and Pest Management

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
212	Pathogens and Nematodes Affecting Plants	5%		5%	
213	Weeds Affecting Plants	20%		20%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%		5%	
216	Integrated Pest Management Systems	70%		70%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	3.5	0.0	0.0	0.0
Actual	3.5	0.0	0.0	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
121757	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
121757	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
385984	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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.

2. Brief description of the target 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

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	12000	25000	100	500
2007	18582	7425	143	275

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	2	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	95	111

Output #2

Output Measure

- 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.

Year	Target	Actual
2007	900	3932

Output #3

Output Measure

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

Year	Target	Actual
2007	0	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Outcome target 1: Increase knowledge of appropriate pest management practices for use in Alaska.
2	Outcome target 2: People will understand and identify the optimum least-toxic pest management practices.
3	Outcome target 3: People will increase their ability to assess their current pest management practices.
4	Outcome target 4: Pesticide applicators will use the optimum least-toxic pest management practices.
5	Outcome target 5: Decrease commercial crop losses from pests by X% over five years (target measured in 'percent').
6	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 #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	150	331

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Environmental awareness and appropriate actions to conserve resources and native species, and maintain clean air and water are important to the Alaskan public. Due to lengthening summer seasons, warmer average temperatures, and increased trade and commerce, introduced invasive insects and pathogens have taken a toll on forests and landscaping. Explosions of populations of pests such as the birch leaf miner, bark beetles, aspen leaf miner, alder and larch insect pests can result in misuse and overuse of pesticides. It is critical that land managers and homeowners receive training in pest identification and integrated pest management practices.
In recent years many noxious and invasive plant species have been introduced and become established in Alaska. Alaskans still have the chance to prevent many infestations before they become so widespread that control is costly and eradication impossible.

What has been done

The Integrated Pest Management (IPM) program addresses the public need for pest management education within Alaska. Eight seasonal technicians across Alaska are the foundation on which this program is based.

Other Extension agriculture and horticulture agents field pest management questions and teach pest management techniques in gardening workshops, through the Master Gardener program and during conferences.
In 2006, UAF-CES hosted the seventh annual statewide conference and workshop of the Alaska Committee for Noxious and Invasive Plants Management (CNIPM).

The Alaska Pest Management Program, funded through USDA/CSREES and the Western IPM Center, continues to be the premiere pesticide use resource for Alaska, offering access to pesticide labels, state pesticide registration, PNW Pest Management Handbooks and links to pesticide information and agencies across Alaska and the nation.

Extension is the lead agency for pesticide applicator training in Alaska and participants in its trainings who pass an exam receive Alaska Department of Conservation certification.

Results

The Integrated Pest Management program identifies any organism in question and investigates the individual site and situation. After consultation with the IPM staff, a total of 137 clients reported that they would use IPM control measures.

During the period of July 1, 2006 and June 30, 2007, more than 2,000 visitors used the Alaska Pest Management Program website at www.alaskapestmanagement.com.

In a scale of 1-5, 49 survey respondents following the Alaska Committee for Noxious and Invasive Plants Management annual conference indicated with an average score of 4.51 that they would apply conference information toward invasive plant prevention and management.

The Extension invasive plant instructor chairs the Alaska Committee for Noxious and Invasive Plant Management board of directors, which is considered the source of invasive weeds expertise by Alaska legislators and policy makers.

The Soldotna agricultural agent was the lead author on a regional Pest Management Strategic Plan (PMSP) for Non-Rangeland Forages (excluding alfalfa) in the Western states.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
212	Pathogens and Nematodes Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	137

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cooperative Extension promotes practical solutions to pest problems with the minimum environmental consequences. Frequently, Invasive Pest Management clientele are seeking a quick solution to a perceived problem. Clients can be underinformed about the need for pesticide use against insects and after receiving educational information, insect identification, and gaining knowledge about beneficial insects, clients often learn that there is no need for chemical pesticide use and indicate this to the IPM staff.

What has been done

Clients who are counseled by IPM staff in all six districts and agricultural agents advise gardeners and horticulturists about the least-toxic pest management practices. Participants in Extension organic gardening and Master Gardening classes and the Sustainable Agriculture Conference also are counseled about the least toxic methods of pest management, as are participants in the pesticide applicator safety training.

Results

After consultation with the IPM staff, a total of 137 clients reported that they would use IPM control measures, which advocate the least-toxic approach.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
212	Pathogens and Nematodes Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	41

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska supports two major international air cargo and sea ports and hosts thousands of visitors a year. Alaska also imports most of its food and many horticultural products, so it remains vulnerable to infestations by imported pests, including invasive plants. Improving citizen and land manager ability to assess pest management practices is critical.

Forty percent of the Alaskan population lives in and around Anchorage and more than 10,000 acres of municipal parkland, 223 parks and 250 miles of trails are heavily used by the public. Although noxious weeds have become a problem in the parks, lack of information couple with public concern about using chemicals in popular parks led to ineffective control measures.

What has been done

The Anchorage invasive plants instructor worked with the Municipality of Anchorage to broaden its noxious weed control strategy. The municipality had simply mowed, which was an ineffective solution. After becoming better informed about plant life cycles and the mechanisms for spreading, the municipality worked with Extension to create a Citizen Weeds Warrior program, which involved manual weed pulls at strategic times. The municipality control measures now occasionally include chemical treatments as well, where appropriate and in combination with other control measures.

Close to 100 Master Gardeners and others in many other gardening classes last year received training that included appropriate pest management techniques.

Results

The Municipality of Anchorage is better able to assess its pest management practices and has learned how to broaden its control methods. Anchorage Municipal Parks and Recreation has begun to address noxious weeds in city park lands through volunteer manual removal projects.

On an individual level, home gardeners learned how to effectively control pests in their gardens.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	141

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Extension faculty who teach pesticide applicator safety certification trainings include information about the Integrated Pest Management program, which advocates for a careful analysis of the pest and the least-toxic pest management practices.

What has been done

Workers who apply pesticides as part of their workplace activity are required to complete pesticide safety training and pass a state of Alaska Department of Environmental Conservation exam. Extension faculty taught 10 pesticide applicator safety certification trainings to 141 participants in seven Alaskan communities. The trainings include a segment about the Integrated Pest Management program, which advocates for a careful analysis and identification of pests and the least-toxic pest management practices.

Forty-three participants attended an annual recertification conference in Anchorage for pesticide applicators and technical providers of pesticide information. It is intended for people who are already certified in pesticide application to gain additional training and knowledge. The conference also includes an Integrated Pest Management update and information about least-toxic practices.
Source of funding: Smith-Lever 3b&c and Environmental Protection Agency pass-through to USDA/CSREES

Results

Applicators trained in the application of pesticides also gained a knowledge of least-toxic methods of pest management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
214	Vertebrates, Mollusks, and Other Pests Affecting Plants

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Retail sales of plant materials contaminated with a variety of pests continue to challenge the state. Increasing Alaska invasive weed issues are expected to generate more pest management issues.

A potato late blight infestation in the Mat-Su Valley in 2005 was blamed on the importation of tomatoes from the Pacific Northwest. Since potatoes are the most important Alaska vegetable crop, late blight was a serious threat to the state potato industry.

What has been done

After late blight was discovered in the Mat-Su Valley in 2005, a rapid response by Extension led to its containment. Extension communicated with farmers, who either decided to spray to prevent the spread of the late blight or decided to take their losses. A few farmers lost half of their crop.

Agents and pest technicians have worked individually with producers to identify pests and identify the best method for reducing impacts. Extension also has informed stakeholders at a variety of conferences.

Extension and the Natural Resource Conservation Service partnered to encourage producers to apply the right pesticides and nutrients at the appropriate times and rates and to keep good records of field management techniques. Producers have also received pesticide applicator safety training.
Source of funding: Smith-Lever 3b&c and Natural Resource Conservation Service

Results

The response to the late blight containment was successful. Blight did not spread to other areas of the state and in 2006, blight was discovered in only one field and the potatoes were plowed under. No late blight was found in 2007. The experience also led to better preparation for future incidence of blight, which has appeared previously in Alaska. A specialist from Wisconsin visited the state and recommended several chemical responses, and Extension worked to have these pesticides registered in Alaska. The Extension potato expert says Alaska has almost tripled the number of tools to fight the disease.

It is difficult to quantify an exact percentage reduction for Extension pest management techniques, but the willingness of agents and technicians to provide information has led to early detection of pests and more effective management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
213	Weeds Affecting Plants

Outcome #6

1. Outcome Measures

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').

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Trees, shrubs and other ornamentals introduced into Alaska have the potential to bring with them one or more pests. The industry relies on Extension expertise to support pest management efforts.

Gypsy moths are ranked in the top three insect threats to Alaska's forests, and are not yet established here. CES Integrated Pest Management maintains collaborative partnerships with public outreach (for pest monitoring to safeguard Alaska natural resources) in strategic projects with federal, state and local organizations including: the U.S. Forest Service, USDA Animal and Plant Health Inspection Service (APHIS), Alaska Department of Natural Resources, the Alaska Department of Environmental Conservation, the Municipality of Anchorage, the Delta Farm Bureau and dozens of others across the state.
USDA/CSREES pass-through funds through Alaska Department of Natural Resources (Division of Agriculture) to IPM program.

What has been done

Prevention and early detection: The Alaska IPM team serves as proactive first detectors with monitoring, trapping and educational outreach to help prevent destructive, imported pests from becoming established in Alaska's forests, woodlots, agricultural fields, home gardens and greenhouses. This work facilitates early detection and rapid response. Exotic Lepidoptera and gypsy moth monitoring: IPM staff, again, placed approximately 300 delta traps in 20 communities across the state.
Source of funding: Smith-Lever 3b&c and U.S. Forest Service

Results

While Extension has worked to prevent gypsy moth infestation and to prevent other pest infestations, it is difficult or quantify by percentage our impact on a statewide basis. Anchorage, because of its role as a transportation hub, has had to be particularly vigilant. A pest associated with ornamentals, tent caterpillars, and the bacterial disease fire blight, have been detected in Anchorage but have been contained and have not been detected in other areas of the state.

The IPM Program staff is trained as 'first detectors' in the Western Plant Diagnostic Network system. This is a collaborative partnership with Oregon State University, USDA-APHIS, the University of Alaska Fairbanks, and the Alaska Department of Administration. The system is in place across Western states to share information concerning potential insect, plant and disease threats to their respective states. (This project is associated with national homeland security measures.) Western Plant Diagnostic Network use has facilitated identification of unknown plants, insects and diseases.
Smith-Lever 3dIPM, U.S. Forest Service and Western IPM Center

4. Associated Knowledge Areas

KA Code	Knowledge Area
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants

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

Brief Explanation

The state offers limited pest control infrastructure outside Anchorage. Extension's invasive plants instructor has taken a leadership role regarding invasive plant and noxious weed management in Alaska and has responded to ongoing requests for assistance (science and policy background) from legislators and from the state attempting to address the issue. Extension will continue to play an educational role as state agencies and legislators work to develop statutes and regulations addressing noxious/invasive plant prevention and management. Public policy decisions will affect Extension's pest management efforts.

Lengthening summer seasons, warmer average temperatures, and increased trade and commerce Alaska has experienced, contribute to the introduction and spread of introduced invasive insects and pathogens.

The high cost of gas and petroleum products have affected farmers' ability to purchase and apply fertilizers and pesticides. As costs go up, the use of these products decrease.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- 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

Evaluation Results

Participants in Extension's pesticide applicator training sessions rate them highly. One agricultural agent, who led seven sessions with 128 students, said they rated the workshop as 4.1 on a scale of 5. Many participants indicated that they had learned effective pest management techniques. It is hoped that, in addition to teaching the safe application of pesticides, participants will learn the pest management techniques with the least environmental impact.

Following the 2006 conference of the Alaska Committee for Noxious and Invasive Plants Management, 50 participants surveyed indicated on a scale of 1 to 5, that the conference has increased their knowledge of invasive plants issues (4.42); would apply conference information toward invasive plant prevention and management (4.51); and would attend future invasive plant classes and workshops (4.69).

When pest technicians work with clients, staff notes indicate what approach clients intend to take.

Key Items of Evaluation

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

Geographic Information - 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
121	Management of Range Resources	0%		20%	
122	Management and Control of Forest and Range Fires	0%		20%	
123	Management and Sustainability of Forest Resources	0%		30%	
605	Natural Resource and Environmental Economics	0%		10%	
903	Communication, Education, and Information Delivery	0%		20%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.1	0.0
Actual	0.0	0.0	2.7	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	95740	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	63774	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	141347	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Correlating land-based information with remotely sensed images: Landscape Fire Interactions: The application of a ratio in creating a fire severity index such as the Normalized Burn Ratio (NBR) has been assumed to minimize the effect of topography on the spectral response. However, in Alaska the solar elevation during the fire season is typically less than 50 degrees and therefore the effect of topography on fire severity estimates from remote sensing may be substantial. Using a potential insolation model to model insolation for the time of satellite overpass in the Boundary Fire, the post-fire NBR was found to consistently vary due to topographic control of solar radiation. To minimize the spectral response due to topographic control of vegetation and fire severity, a differenced NBR was computed using two post-fire images (from August and September). There was a substantial negative bias in the remotely sensed fire severity estimate as potential insolation decreased due to topography. Thus fire severity would be underestimated for stands in valley bottoms or north-facing slopes. These are areas where highly flammable black spruce stands typically occur. The effect of changing solar elevation and plant phenology can also affect fire severity estimates independent of fire severity. Fire severity estimates varied considerably based on a differenced NBR approach using the same post-fire image and using different pre-fire images acquired at dates ranging from June through July. Using a later pre-fire image consistently resulted in higher fire severity estimates. The high fire severity class increased by over ten percent when a July pre-fire image was used instead of a June pre-fire image. •Spatially Modeling the Distribution of Beef Cattle and Reindeer:We continued observations of the beef cattle herd located at the Matanuska Experiment Farm outside of Palmer, Alaska. Spatial and activity data representing all time periods occurring during a twenty-four hour day were obtained. In all, we obtained data for seven 24-hour periods (one 24-hour period for each week of observations). Videotaped data is converted into digital format through on-screen digitizing using high resolution orthophotos as a backdrop. Low-cost GPS receivers were tested this summer to determine battery life and accuracy of the units using a static setup. The Seward Peninsula reindeer project is a Masters-level graduate student project to develop models to predict suitable habitat for calving females. He has made good progress and is currently writing up his results for publication. We have entered into a joint research project with Oregon State University and the USDA Agricultural Research Service out of Boise, Idaho to test prototype GPS collars using the reindeer on the Seward Peninsula. The major output associated with this project includes mentoring and teaching a Masters-level graduate student in proper research methods, analysis and modeling of data. Other outputs are the development of two types of low cost GPS collars for monitoring range animal behavior and distribution.

2. Brief description of the target audience

• Landscape Fire Interactions: Fire managers, fire ecologists, graduate and undergraduate students.

•Spatially Modeling the Distribution of Beef Cattle and Reindeer :Reindeer Herders Association. 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. Graduate and undergraduate students.

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	50	0	0	0
2007	60	500	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of databases developed.

Year	Target	Actual
2007	1	20

Output #2

Output Measure

- Number of curricula developed.

Year	Target	Actual
2007	1	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of data sets successfully merged with GINA.
2	Number of curricula adopted.

Outcome #1

1. Outcome Measures

Number of data sets successfully merged with GINA.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1000	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Normalize Burn Ratio (NBR) is being applied routinely by the USGS to map burn severity in National Parks and National Wildlife Refuges throughout Alaska. It is also being applied in a large national program aimed at monitoring trends in burn severity.

What has been done

This research clearly shows that this remotely sensed index is influenced substantially by factors other than fire severity including topographic effects due to relative low solar elevations at high latitudes. The use of different pre-fire images substantially changed the fire severity estimates, most likely due to changing plant phenology and solar elevation.

Results

This research clearly shows that this remotely sensed index is influenced substantially by factors other than fire severity including topographic effects due to relative low solar elevations at high latitudes. The use of different pre-fire images substantially changed the fire severity estimates, most likely due to changing plant phenology and solar elevation. Therefore the use of NBR to monitor fire severity in either time or across regions requires extensive field data to calibrate NBR threshold values which would change substantially during the fire season.

4. Associated Knowledge Areas

KA Code	Knowledge Area
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Number of curricula adopted.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Undergraduate and graduate students and faculty in the School of Natural Resources and Agricultural Sciences. This research contributes to the development of curricula.

What has been done

GIS A370/NRM 394 - Remote Sensing for Natural Resources and NRM 312 Range Management Research.

Results

This curricula and research findings are dessiminated through the AgroBorealis, the Research Magazine of SNRAS/AFES and through the following websites: http://www.uaf.edu/salrm/afes/pubs/index.html; http://www.uaf.edu/salrm/faculty/harris/html.; http://reindeer.salrm.uaf.edu

4. Associated Knowledge Areas

KA Code	Knowledge Area
903	Communication, Education, and Information Delivery
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
122	Management and Control of Forest and Range Fires

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

Brief Explanation

Remote sensing of fire severity from optical satellite data has some unique challenges in Alaska relative to the lower-48 United States. Some of these challenges include cloud cover and cloud shadows during and after the fire season, poor inventory of pre-fire imagery, low solar elevation, and substantial changes in spectral reflectance due to plant phenology and solar elevation changes during the fire season. Public priority and government regulations affect fire management. This determines our program direction. Curricula are developed to meet demand for information on changing fire management technologies.

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

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Youth Development

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	9.0	0.0	0.0	0.0
Actual	9.0	0.0	0.0	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
313090	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
313090	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
321813	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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.

2. Brief description of the target 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

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	500	2000	11000	15000
2007	5931	85974	14913	18050

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	5	0	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	0	1

Output #2

Output Measure

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

Year	Target	Actual
2007	250	250

Output #3

Output Measure

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

Year	Target	Actual
2007	3	4

Output #4

Output Measure

- 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.

Year	Target	Actual
2007	10	50

Output #5

Output Measure

- 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.

Year	Target	Actual
2007	5	4

Output #6

Output Measure

- 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.

Year	Target	Actual
2007	5	6

Output #7

Output Measure

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

Year	Target	Actual
2007	5	50

Output #8

Output Measure

- 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.

Year	Target	Actual
2007	5	50

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Outcome target 1: All faculty and staff with 4-H youth development responsibilities will be trained and understand the Essential Elements of Youth Development.
2	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.
3	Outcome target 3: Youth work skills projects for 15 to 18 year olds will improve participants' work skills.
4	Outcome target 4: Youth who participate in a youth entrepreneurial training project will try to start a youth-based business within three years.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	9	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

If 4-H staff is going to teach 4-H leaders about the Essential Elements, then staff needs to have the best understanding of the impacts and program. The Essential Elements are what sets 4-H apart from other youth-serving organizations. The four elements have become a framework for viewing the 4-H program.

What has been done

All Alaska 4-H staff members and others with 4-H responsibilities have been trained in the description and delivery of the four Essential Elements of 4-H. The creation of the Essential Elements is based on the head, hearts, hands and health aspects of the 4-H promise. These aspects of 4-H define all areas of the program and content matter. Based on research for over 100 years, the aspects have been conceptualized into 4 areas: belonging, mastery, independence and generosity. These elements cover the areas of life skills that youth need to become contributing citizens.

Results

All of the 4-H staff in the Alaska program trained and presented information to their constituents about the Essential Elements of 4-H. Using newsletters, videos and handouts, training has been given in these areas as well as it being a part of everyday 4-H language. Leaders may participate in the 4-H Volunteer Leader Professional Development series, a monthly audioconference on various issues, including Essential Elements for 4-H Youth Development, service learning opportunities, volunteer protection and risk management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	125	225

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The four elements have become a framework for viewing the 4-H program. By asking leaders, clubs and youth about something they are doing, categories can be applied to understand a larger picture of life skills, leadership as well as citizenship. These four elements also define for volunteer adults the roles they can play in the life of 4-H members as mentors, role models and coaches.

What has been done

Through incorporation of the essential elements into the Alaska 4-H program, a new yearly plan for leaders to fill out is being created. Leaders are asked to provide information on events throughout the 4-H year for their clubs and also to show how activities will be identified through at least two Essential Elements. A step in the new club chartering process includes the identification of Essential Elements in club activity planning.

Results

As a result, programs, and club actions have taken on a new more up-to-date meaning. The elements have been applied locally as well as globally in terms of current and far-reaching outcomes for the club members. Learning how to accept people can prevent prejudice in the future, and mastering a skill can provide self-esteem as well as a means to earn a living. Being generous can create a view of acting as if what one person does has impacts on many more lives and belonging can create an atmosphere of cooperation and consensus rather than power and bullying that can lead to escalations of hostilities or ego.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The leadership skills and competencies youth learn in 4-H often translate into effective work skills and interests that lead to vocations and higher education. All of our 4-H staff have examples of kids whose interest in animals led to a spin-off of kids breeding animals or in a few cases, attending veterinary school. Other kids who learned how to garden opened a subscription garden service and sold produce at farmers markets.

What has been done

For the past 5 years, the Nome agent has taught high school student an annual two-week course on language and literacy activity activities for young children. The students spend three hours a day working in early childhood classroom.

Youth on an Army base started a cooking club in the fall of 2006 that has become entrepreneurial. They have catered numerous other events, including a wedding, and they are learning budgets, quantity cooking skills and scheduling.

Several trainings 4-H offers lead to work skills. Kids who raise and sell market animals learn about showmanship and marketing, and teens who are trained as camp counselors improve leadership and confidence.

Seven youth on the Prince of Wales Island 4-H Youth First Responders (YFR) Project are learning emergency medical training.
Source of funding: Rural Development USDA grant.

Teens on Eielson Air Force base who participated in an after-school 4-H program led a number of base initiatives. They planned, staffed and taught programs for younger children, including two lock-ins, and created a dating violence awareness DVD.

A 4-H student on the Kenai Peninsula was offered an opportunity to earn elective credit through assisting with general veterinary clinic procedures. The 4-Her is exploring a career as a certified veterinary technician.

Results

Various 4-H projects have yielded results. All eight kids who participated in last years early childhood development class in Nome earned college credit. The horse-inspired youth and the cooking club members have learned life skills as well as valuable marketing and business skills as are youth involved with market livestock programs. Several youth from the Sitka First Responders program are now in college pursuing health careers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Skills learned through 4-H can lead to kids following vocational interests or getting jobs that help support their college education. Employers also look favorably on the work skills gained.

What has been done

The classic 4-H entrepreneur training involves kids who raise pigs and other market animals for the fair. Several kids who participated in the market livestock program bred and sold pigs and other animals to 4-Hers and others.

Kids who learned gardening in their clubs later sold produce they grew through farmers markets and through subscription gardening services. Another girl who participated in a horse club started a home business teaching kids how to ride.

Youth on an Army base started a cooking club in the fall of 2006 that has become entrepreneurial. They have catered numerous other events, including a wedding.

Seven youth on the Prince of Wales Island 4-H Youth First Responders (YFR) Project are learning emergency medical training.
Source of funding: Rural Development USDA grant.

Results

Kids learn skills that they used to help support their college education. Graduates of the Sitka 4-H First Responders Program are now studying health careers in college. Some 4-Hers went into business and the livestock training, for instance, led them to a vocational area.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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

Brief Explanation

Vast geographic distances between communities and communities that are available only by air or boat inhibit groups of 4-H kids from different communities getting together as well as program delivery. Low staffing, in particular, the departure of the 4-H agent in Juneau and the loss of a 4-H position on Kodiak, have affected the 4-H program in those areas.

Another factor affecting 4-H results is a shift in demographics. Anchorage has a more diverse population without a cultural tradition of 4-H participation. 4-H exists on all military installations in Alaska but the built-in transience of the population holds down the retention rate.

Shifting economic factors also have an impact, with more, two-parent or single-parent families working and unable to volunteer or support the program.

Alaska lacks the cohesiveness that a state 4-H program leader might bring to the program. The position was recommended by a 2006 program review but the position has not been funded.

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

1. Evaluation Studies Planned

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

Evaluation Results

In almost all of our programs 4-H does post-activity surveys. Our state lacks in guidance in evaluation procedures.

One agent noted that all agents are on their feet teaching kids or teaching parents so it’s hard for them to come up with a one-size-fits-all evaluation.

4-H has attempted to implement some of the recommendations based on a 2006 program review. Communication has been improved between agents in different communities, for instance. 4-H staff in 2007 communicated by audio regularly, and beginning in January 2008, started a weekly audio. An increase in the number of activities involving multiple districts reflects increasing interchange between the districts.

Key Items of Evaluation

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Sustainable Individuals, Families, and Communities

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	0.3	0.0
Actual	10.0	0.0	0.0	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
347878	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
347878	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1198690	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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.

2. Brief description of the target 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.

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	6900	70800	680	810
2007	11623	591637	1081	31130

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	4	0	4

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	100	162

Output #2

Output Measure

- 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.

Year	Target	Actual
2007	0	1

Output #3

Output Measure

- 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.

Year	Target	Actual
2007	0	0

Output #4

Output Measure

- 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.

Year	Target	Actual
2007	350	700

Output #5

Output Measure

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

Year	Target	Actual
2007	0	35

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Outcome target 1: Participants in food preservation and food safety classes will improve their knowledge of food preservation and food safety practices.
2	Outcome target 2: Participants in food preservation and food safety classes will improve their food preservation and food safety practices.
3	Outcome target 3: Participants in healthy physical lifestyle classes will increase their knowledge of healthy physical lifestyle choices after participating in the class.
4	Outcome target 4: Participants in healthy physical lifestyle classes will adopt and maintain healthy physical lifestyle practices one year after participating in the classes.
5	Outcome target 5: Awareness of the importance of energy conservation will double over 2005 awareness levels over a five-year period.
6	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.
7	Outcome target 7: Participate in a parent education class will increase their knowledge of developmentally appropriate parenting practices
8	Outcome target 8: Participants in a parent education class will increase their application of developmentally appropriate parenting practices.
9	Outcome target 9: Participants in a human relationships classes will increase their knowledge for appropriate human relationship skills.
10	Outcome target 10: Participants in a human relationships classes will increase their application of appropriate human relationship practices.
11	Outcome target 11: As a result of receiving financial management training workshop participants will increase their knowledge of personal financial planning topics.
12	Outcome target 12: Based upon information provided by Extension in financial management workshops, participants will access reliable resources for making sound financial management decisions.
13	Outcome target 13: Participants in financial management workshops will adopt improved financial management practices when making financial management decisions.
14	Outcome target 14: The energy efficiency of the Alaskan housing stock will increase by 5% over three years.
15	Outcome target 15: Awareness of the importance of renewable energy sources will increase by 20 percent per year over five years.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	130	471

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska has an abundance of naturally occurring food. Fish, game meat and berries are plentiful and high in nutritional value. Grocery costs are high due to the low availability of locally grown foods and the high cost of shipping from the Lower 48. A sizeable percentage of Alaskans live a subsistence lifestyle, in effect, living off these naturally occurring foods. Many others routinely supplement their diets with fish and game meat. Proper preservation techniques are essential to retain the high quality and nutritional value of these foods.

Alaska has the nation's highest rate of botulism, a food-borne illness that occurs in low acid foods such as fish and game meat. It is particularly important that we teach Alaskans how to safely preserve fish and game meat, staples in the Alaskan diet.

What has been done

Agents taught food safety and preservation classes in 17 small and large communities, including towns accessible only by plane or boat and to military families.

Agents created three DVDs to provide safe food preservation information. These are the first of a ten-part DVD series that will focus on foods available in Alaska. The series is supported by a USDA grant.

Agents across Alaska tested 694 pressure canner gauges during the year with a 15 percent failure rate. Three-quarters required adjustments.

Sixteen entrepreneurs have worked with the small business development specialist to create new food businesses related to food preservation techniques.
Source of money: USDA grant

During the past year, 412 clients from 24 Alaska communities and a resident of Nevada called our toll-free food preservation. Additionally, 90 clients used our Ask an Expert resource on the Extension website.

Monthly newsletters created in the Fairbanks, Palmer, and Anchorage districts contained food safety and preservation information. Food safety and preservation information was also made available in district offices, fairs, and dozens of food preservation publications may be downloaded or ordered from the Extension website.

Results

Approximately 90 pressure canner gauges were replaced, resulting in safely canned foods.

Two publications were written featuring the results of the antioxidant study on Alaskan wild berries. Agents also have presented programs to get the word out on the high antioxidant level in Alaskan berries.

Nine preserved products are being produced by small businesses with seven more products in the planning stages.

Because of the high number of Alaskans who depend on or supplement their diets with fish and game meat, and Extension history of providing information about food preservation and food safety, people know that Extension is an excellent resource in this area.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
703	Nutrition Education and Behavior
502	New and Improved Food Products

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	80	110

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Safe practices are essential for preserving foods. It is also important that clients are confident in their abilities to preserve a high quality product. Alaska is a transient state with a large influx of military population, most of whom have not previously canned or preserved game meat or fish Since many other Alaskans supplement their diets or rely on game meat and fish, it is important to provide hands-on courses for clients to preserve foods safely. Clients who practice these skills will be able to continue preserving foods safely.

What has been done

110 clients participated in hands-on food preservation workshops, canning 325 pints of food.

Results

It is difficult to quantify our impact here, but as more Alaskans learn the proper methods of preserving foods safely the risk of botulism decreases. Clients who learn food preservation skills also become more self-sustaining because of the high transportation costs associated with importing food.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
703	Nutrition Education and Behavior
504	Home and Commercial Food Service

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	260	433

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska is a land of extremes. Cold weather and short days during the winter result in less opportunity for exercise. At the same time, the population is aging. The Alaska senior population is growing faster than all other states except Nevada. In past decades, people often came to Alaska as young people, retired and moved back south. Now this trend is reversing with more choosing to stay after retirement. With this trend, Alaska faces the challenge of our senior population remaining active and healthy in a challenging environment.

What has been done

Alaska CES introduced the StrongWomen program in 2004 and during this past year, Extension conducted classes in all seven districts. The StrongWomen targets middle-aged and older women (and men). It offers strength training exercises and relevant educational information on balance, bone health, and nutrition. Scientific research has demonstrated that strength training can reduce the risk for chronic diseases such as diabetes, heart disease, arthritis and osteoporosis. Strength training has also been shown to positively affect psychological health. The Soldotna agent, who is a certified instructor, trained 41 leaders from 11 communities to continue classes. The StrongWomen program is an ideal exercise program for rural Alaska because a minimum of equipment and space is required.

Results

More than 400 clients have participated in 8- to 12-week sessions of the StrongWoman program, meeting two or three times a week. One of the clients told the leader that she had gained 1.3 percent of her bone mass during her latest checkup. In general, sedentary women lose .5 percent bone mass per year.

The Soldotna agent, who also trains leaders, started a twice-weekly session in Kenai. Ten women participated. The agent said that watching the women progress is what she enjoys the most about teaching this program. She said the participants often talk about the physical changes they either see or feel. One year after the start of this class, she followed up with a mailed evaluation. Eight women responded with comments that they walk better, are able to rise from a chair easier and they feel better.

One of these women participated in the leader training and has since offered two classes. Two participants in the Nome StrongWomen leader training last February continue to offer the classes in Nome.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Beginning an exercise program is important. Maintaining an active lifestyle is more important. Since strength training has proven health effects, such as reducing the risk for chronic diseases such as diabetes, heart disease, arthritis and osteoporosis, continued participation in an exercise program generates continuing benefits. Strength training also has been shown to reduce depression and contribute to a sense of well-being, so improved mental health is an important side benefit.

What has been done

Strong Women leaders have been trained and peer leaders are taking over leadership and maintaining groups.

Results

During the past year, 41 leaders have been trained to lead StrongWomen workshops. Of the 26 other leaders trained, 20 either started new programs or assisted with already established StrongWomen sites.

StrongWomen groups have been continuously running with peer leadership for more than four years in Kenai, Fairbanks, Bethel and Juneau. Newer groups that have a shorter duration are in Anchorage, Fairbanks, Palmer and Nome.
Participants who continue for more than a year number 115 statewide. Extension has not followed up on participants who haven't returned. Some may have joined a fitness facility.

After Extension introduced the program, a number of other organizations now offer StrongWomen classes, including the Kenaitze Indian Tribe, senior centers, churches, Southeast Regional Health Consortium, hospitals and numerous employee programs. It is estimated these programs reach 400 participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	400	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

With rising heating oil and electricity prices, the interest in energy conservation has risen substantially. It is a pocketbook issue, particularly in rural areas, where energy costs are the highest.

What has been done

The energy specialist has been active promoting energy conservation in a variety of newspaper articles and opinion pieces published in the state's two largest newspapers.

He developed a retrofit course last year, which promotes energy conservation through weatherization. He began teaching the course this past January.

Attendance at his solar design classes are testimony to people wishing to explore alternate energy sources. During the past year, 140 people attended his solar design workshops. Another 341 people attended his cold climate or marine climate home-building workshops.
Energy specialist writes a quarterly newsletter with advice for homebuilders that includes ideas for energy conservation.

Results

An increased awareness of energy conservation and higher energy prices will lead to a greater number of homes retrofitted to save on energy costs. Greater attendance at Extension workshops indicate a growing interest in the area of energy conservation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #6

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	104

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nationally, the incidence of diabetes is rising at a rapid pace. According to 2000 statistics from the state of Alaska, 3.4 percent of the adult population has been diagnosed with diabetes. The prevalence is higher in urban areas, in older populations and among African Americans, Hispanics and Alaska Natives. Over the previous 20 years, diabetes among the Alaska Natives has increased by 80 percent. Increases in the prevalence of obesity are expected to lead to even more diabetics.

Learning how to deal with a diabetic diet must be learned on a physical, emotional, and mental level.

What has been done

Agents have taught eight Dining with Diabetes classes in five districts in cooperation with diabetes educators and registered dieticians. Alaska CES uses a curriculum developed by West Virginia University Services. The goal is to improve the lives of diabetics by increasing knowledge about diabetes and nutrition. The Kenai agent calls her classes, Cooking With Diabetes, because participants do hands-on food preparation.

Results

More than 100 clients were trained in methods to prepare healthy foods to maintain a good diabetic diet.

About 60 percent of those indicate they intend to change their diet based on the information they received in this programming. The percentage is based on evaluations undertaken by the Fairbanks agent over the past four years. The agent believes that the others in the class may already be eating correctly.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #7

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	80	114

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Early childhood development classes are available in more urban areas of Alaska but are more difficult to access in rural Alaska. Employment in the field of early childhood is available in the rural hub areas and the villages. These positions include day care worker, classroom aide, Head Start teacher and classroom teachers. Some of the students early childhood development classes offered by the Nome agent have been teen parents or want to improve their skills for when they have a family some day. Skills are important for work and family life.

Understanding the development of children and the impact environment has on development is a key to understanding why certain some parenting practices promote development and others can be detrimental.

What has been done

Skills for working with young children is an introduction to the courses listed below. It also prepares students for a three-hour volunteer experience in an early childhood setting the next day. Thirty-nine students from mostly from remote communities participated in classes taught by the Nome agent.

During the Language and Literacy Activities for Young Children class, eight students not only discussed the development of language skills, they also covered brain research and child development in general. This class also includes 16 hours of classroom instruction combined with 24 hours of work experience in an early childhood education setting.

Brain Research & Child Development course covers the importance of the first years of life and how the environment impacts a child development. Fifty-eight students and adults participated.

Results

The eight students in the two week course started demonstrating during classroom activities that they were grasping the concepts of working with young children. When they reported to the group they offered appropriate examples of how they handled situations with children. The classroom assignments also showed their growing understanding of early childhood development. It is hoped that students will apply these lessons to their lives and also will provide a foundation for high school students who plan to study a health career in college.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Again, the availability of early childhood development classes is limited in rural areas. These classes can lead to employment or an improvement in personal skills that are applicable to families.

What has been done

Eight high school students took a one-credit language and literacy activities for young children class in Nome. All eight students completed this course for credit. It was the first college-level course they had taken. These students were all from villages in the Bering Straits region. They were able to complete the assignments and made wonderful progress working with children at their early childhood education placement.

Results

Students gained practical experience and skills that could lead to employment and all eight earned their first college credits, potentially interesting them in continued education.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #9

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Since many Alaska live without the support of extended families, human relationships classes are important but good resources in this area already exist in many communities. Extension lost its Bethel agent this year and her expertise and program support in this area.

What has been done

Our Nome agent has been teaching early childhood education to Nome area high school students and adults. Her students include pregnant teens and others who want to learn important childhood development skills. Thirty-nine students from mostly from remote communities (villages) participated in classes involving the Nome agent. The students participate in a three-hour volunteer experience in an early childhood setting.

Results

Students learns skills that they can apply in their own lives, and also for employment working with young children.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Since many Alaska live without the support of extended families, human relationships classes are important but good resources in this area already exist in many communities. Extension lost its Bethel agent this year and her expertise and program support in this area.

What has been done

Our Nome agent has been teaching early childhood education to Nome area high school students and adults. One class emphasizes language and literacy activity for young children. Eight students in this class covered brain research and child development. The class includes 16 hours of classroom instruction combined with 24 hours of work experience in an early childhood education setting: day care, Head Start, kindergarten or preschool.

Results

The eight students in the two-week course started demonstrating during classroom activities that they were grasping the concepts of working with young children. When they reported to the group, they offered appropriate examples of how they handled situations with children.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	55	292

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The saving rate in America has moved into negative territory. For the first time since the Depression, Americans are spending more than they earn. At the same time youth are faced with the daunting costs of attending college.

Credit problems are common and rural residents especially have a more difficult time in maintaining their financial footing. Jobs are scarce and many people live a subsistence lifestyle. Cost of living is high due to shipping costs on everything from electricity to foods to diesel.

What has been done

Almost 200 youth in high school economic classes were trained in cost of credit classes. Youth were trained to use a financial calculator to calculate the savings rates and the cost of loans for a car, a house and a college education.

Agents in three districts have taught eight money management classes to 93 military, low income and rural residents. The Fairbanks agent taught classes in three rural communities that were attended by 23 people.

Results

Fifty percent of students taking the cost of credit class expressed an increased understanding of the credit issue and scored better on personal financial issues during regular classroom testing.

A few participants in money management classes expressed an interest in drawing up a budget.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #12

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15	13

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Knowledge of money management techniques is essential to improved financial fitness. However, taking the steps of creating a budget/spending plan and paying down debt makes positive steps toward improving the family financial situation.

What has been done

The Fairbanks agent presented a series of workshops in Dot Lake, Tok and Delta Junction to help people create budgets and control credit costs.

Fourteen members of Job Corps received money management training in Palmer and eight members of the public attended a similar workshop in Wasilla.

Results

Sixty percent of attendees in the Interior workshops expressed an intention to create a spending plan for their families.

Seventy-five percent of attendees learned at least one new concept on financial planning from the program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #13

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Creating spending plans and controlling financial expenditures are the center of the process of gaining control over family finances.

What has been done

Financial counseling is offered by Home, Health and Family Development agents to help clients develop spending plans, control credit costs, increase savings and make financially sound decisions related to their lives.

Results

Financial counseling has been done with six clients helping them establish family budget in order to reduce debt. One client has avoided bankruptcy. One other client has used the methods taught by the agent to pay off two credit accounts and begin a savings program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #14

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The public needs to lower fuel costs and a weatherization retrofit of existing homes is the best assurance to achieve that.

What has been done

The energy specialist has written opinion pieces about the need for retrofitting that have appeared in the state's two largest newspapers.

He developed a retrofitting course last year and began teaching it broadly in January and passing out a new retrofit manual. During the past year, he participated in several and state policy events, including the Sustainable Northern Housing International Conference. He also gave an international conference paper on zero net energy housing at the Solar World Forum in Beijing, China in September. The Alaska residential housing manual he developed is used by Alaska Works Apprenticeship and job placement program.

Results

The housing specialist has continued to try to meet residential energy housing needs as they develop. His workshops have been well attended, particularly as heating oil costs have risen. The interest in his new retrofit course is expected to lead to increases in the energy efficiency of Alaskan housing stock. The state is considering a $300 million program to achieve this as well. The program is pending. The energy specialist feels that he cannot guess on increases of energy-efficient homes yet and that an unfinished need is to survey those who have taken the retrofit course to see how many acted on the information.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #15

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Again, the rising cost of heating oil and electricity has led to heightened interest in developing renewable energy sources, including wood heat and solar energy. Heating fuel bills have doubled in Interior Alaska in the past four years and have risen more than that in rural areas.

What has been done

The housing and energy specialist has taught his solar design workshop to 140 individuals in the past year, many of whom also purchased his solar design manual. Although Alaska may not seem like a likely candidate for solar heat, a number of residents are using solar design to lower their electricity bills. More than 90 people attended a solar workshop this past February in Fairbanks. Fifteen people attended a workshop last summer for solar installers, people who wanted to learn how to install solar systems. Cooperative Extension and the Cold Climate Housing Research Center hosted the training.

Results

Again, a follow-up survey is needed to revisit solar workshop participants to check on what they did as the result of courses. The energy specialist notes that more people appear to be installing solar design systems as a business so that's a sign of increasing interest and awareness.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

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

Brief Explanation

The Home Health and Family Development staff in Alaska is small with six agents in district offices and three specialists at the state office. This translates into agents covering large, geographic areas. The Tanana District in the Interior includes an area the size of the state of Montana with one agent on staff to cover the entire area.

Travel dollars are an issue because air travel is necessary for most agents to travel beyond their district office.If the agent in Juneau presents a program beyond the city, she must ride the ferry or catch a plane. There are no roads to drive to the next location.Travel budgets are limited.This results in agents traveling beyond the district office with less frequency. Though agents have been very successful in partnering with other governmental and private entities to make each travel dollar go farther, they are still are unable to travel as often as requested.

Staff vacancies have been an issue. The agent in Bethel retired last year.She was the family life contact for the Home, Health and Family Development staff.When refilling her position was delayed, Extension lost the district work for the year as well as the support for the family life program throughout the state.Staff vacancies have also been a factor in the FSNEP and EFNEP program.We have had difficulties in replacing nutrition aides that were willing to work 20 hours a week at the pay rate.Even when we have been successful in rehiring, the time for recruiting and filling positions has left positions open in FSNE and EFNEP and has pulled HHFD agents away from their normal duties to complete the process.In October of 2007, we had three of seven FSNE nutrition aide positions filled and two of five positions filled for EFNEP.

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

1. Evaluation Studies Planned

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

Evaluation Results

Consistent, complete evaluation of Home, Health and Family Develoment programming has not been strong. In response to this, an evaluation specialist was brought in to teach a workshop on evaluation at a statewide training this past November.Since that time, he has made his services available to HHFD agents and specialists to review questionnaires and to help agents evaluate programming. The specialist brainstormed with staff on evaluations of food preservation DVDs. As the result of that, a survey was piloted earlier this year and will be included with three food preservation DVDs this spring.

Key Items of Evaluation

Program #6

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	0%		12%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant	0%		7%	
204	Plant Product Quality and Utility (Preharvest)	0%		10%	
205	Plant Management Systems	0%		20%	
212	Pathogens and Nematodes Affecting Plants	0%		1%	
301	Reproductive Performance of Animals	0%		5%	
302	Nutrient Utilization in Animals	0%		5%	
306	Environmental Stress in Animals	0%		5%	
307	Animal Management Systems	0%		5%	
401	Structures, Facilities, and General Purpose Farm Supplies	0%		5%	
405	Drainage and Irrigation Systems and Facilities	0%		5%	
502	New and Improved Food Products	0%		5%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	0%		5%	
601	Economics of Agricultural Production and Farm Management	0%		5%	
701	Nutrient Composition of Food	0%		5%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	6.7	0.0
Actual	0.0	0.0	13.8	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	824523	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	726273	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	1507408	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Greenhouse production systems: Day length information was provided for growers on curly parsley, Golden Lemon thyme, fresh spearmint, snap beans Provider and Concesa and bulb onions; •Controlled environment production systems: Butterhead lettuce was tested in a nutrient film system to enhance and extend seasonal crop production for commercial and subsistence growers. Specialty plastics were evaluated for use in high tunnel systems; •Horticultural crop production: Peony roots were purchased from six commercial sources to study the variation in root size in relation to quality of commercial plant. Roots will be planted in May 2008; •Market garden production: potato varieties and management strategies were evaluated for production in South Central Alaska, the major potato production region. The primary stakeholder event was the annual Potato Day meetings held in Palmer for the potato industry. The Potato Demonstration Day for Anchorage gardeners and multiple potato tasting were held around the state. One of the products of this collaboration is the production and evaluation of new potato germplasm that has potential marketing opportunities for small-scale growers; •Field research on perennial legumes and other alternative forage and grain crops: Variety trials included Polish canola, Oriental and brown mustards, yellow mustard, Camelina, Otal spring feed barley, Thual hulless barley, Ingal hard red spring wheat, and Reward Polish canola. Forage crops included cicer milkvetch, forage galega, and lupinaster clover; Field research on soil nutrient management to improve production efficiency and yields of subarctic plants concerned the use of phosphorus fertilizer. Soil was analyzed for total and extractable phosphorus; •Turfgrass research: This year is the 6th over wintering evaluation of turfgrass cultivars.42 cultivars have been tested. Evaluations of the sand-based green and fairway cultivar studies were conducted biweekly. Fertilizer management on Laser bluegrass and Penn G-6 creeping bent grass was conducted.Nitrogen rates were also evaluated; •Livestock research: Reindeer estrus, breeding and gestation length as well as milk production in reindeer cows and calf growth rate associated with specific milk components. Results have been reports at four scientific meetings three annual producer association meetings (Alaska Diversified Livestock Association, Kawerak Reindeer Herders Association, Fox River Cattlemans Association), 21 public workshop presentations, numerous farm consultation sessions with individual livestock producers in Alaska, and animal science classes taught in on the University of Alaska Fairbanks. Reindeer health research involved the measuring of mean serum concentrations of Zinc, Iron, Magnesium, Selenium and Copper in yearling male and female reindeer during summer. The six herds measured are the Davis, Gray, Noyakuk, Olanna, and Weyiouanna herds. Research on feed supplementation compared Smooth bromegrass with pasture grasses for nutritional profile.

2. Brief description of the target audience

•Greenhouse and Controlled Environment Production Systems: owners, managers and employees of local greenhouse and other horticulture operations and businesses; individuals considering potential horticulture production ventures; students at secondary and post-secondary levels including undergraduate and graduate students; initial and continuing training opportunities for the local workforce of horticulture operations. •Horticultural Crop Production: horticultural trials: all home gardeners, commercial greenhouse/nursery/landscape businesses in Interior, Alaska; berry research: home berry pickers, commercial berry harvesters and cottage industries based upon berry processing, Extension home economics programs; peonies: commercial Alaska fresh cut flower growers. •Market Garden Crop Production: commercial growers of potatoes and the industries that service them, home gardeners, retail venues that sell potatoes, subsistence potato growers. •Perennial legumes and forage and grain crops:forage crop producers and livestock producers in interior Alaska. Farmers, extension agents, State of Alaska Divison of Agriculture personnel, Federal agencies such as USDA/ARS and NRCS. •Turfgrass: Golf course superintendents, municipalities, schools, and private turfgrass maintenance personnel, sports field turfgrass users, turfgrass seed growers and marketers and homeowners. •Livestock production: Alaska Diversified Livestock Association; Kawerak Reindeer Herders Association, Nome, Alaska; Fox River Cattlemans Association; ranchers and livestock producers on the Alaska road system and Kodiak Island. •Quality reindeer meat: producers and consumers in Alaska and nationally, Reindeer Owners and Breeders Association •Graduate and undergradute students

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	85	250	0	0
2007	100	1700	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	7	7

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
2007	25	574

Output #2

Output Measure

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

Year	Target	Actual
2007	2	3

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
2007	2	3

Output #4

Output Measure

- Identify high value plant products.

Year	Target	Actual
2007	2	2

Output #5

Output Measure

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

Year	Target	Actual
2007	2	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agricultural crop production in Alaska is limited by insufficient infrastructure and transportation. Since farmers can't compete in world markets they are interested in local niche markets. Reliable information on high value agronomic niche crops such as hulless barleys and oats, grass seed, and oilseeds as well as horticultural niche crops like flowers, vegetables and nursery plants is important to local producers trying to fill and sustain the demand from local markets for niche crops.

What has been done

1)Identity hulless barley and oat cultivars that can be grown in Alaska with a reasonable assurance of a successful harvest, 2) make final selections from the hulled feed barley cross and the hulless barley cross for eventual release as named varieties, 3) make and test selections from the original Sunwheat selections, 4) test new cultivars of barley, oats, and wheat from other northern regions, and 5) evaluate effectiveness of irrigation for improving crop yields and quality in interior Alaska.

Results

Varieties were evaluated at Fairbanks, Delta Junction, and Palmer, Alaska. Weather data was collected daily for precipitation, maximum and minimum temperatures, and evaporation at each location. Periodic soil temperature and moisture readings within the root zone were made. Physiologic growth stage information, height, lodging, and disease incidence for each plot was recorded. At harvest, yield and test weights for each plot were determined. This information along with long term weather records allow us to predict the likelihood of a given variety maturing in a given location. Variety Trials conducted are on feed barley, hard red spring wheat, and oilseeds including Polish canola, Oriental and brown mustards, yellow mustard, and Camelina from northern Canadian and U.S. Alaskan varieties (Otal spring feed barley, Thual hulless barley, Ingal hard red spring wheat, and Reward Polish canola) were included for comparison.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant
204	Plant Product Quality and Utility (Preharvest)

Outcome #2

1. Outcome Measures

Cost savingsby utilization of in-state animal feeds

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Reindeer producers are interested in marketing this high quality lean meat which has a ready market. Farmed reindeer can't survive on pasture grass alone and a high quality feed was needed to keep deer in enclosures during caribou herd migrations and to increase profitability.

What has been done

The biomass production and nutritional profile of two pasture grasses were evaluated.

Results

Recommendations can be made to reindeer producers that Kentucky bluegrass has a better nutritional profile and is palatable to reindeer. However, smooth bromegrass may be more profitable since it can be used for pasture and hay production. In previous reporting periods it was determined that use of local feed can save as much as 50% in the cost of reindeer rations when the deer are ranched.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
302	Nutrient Utilization in Animals
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
701	Nutrient Composition of Food

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	850	850

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Horticulture is the largest agricultural industry in Alaska accounting for more than 50 percent of cash receipts for all agricultural crops in the state and 40 percent of all agricultural commodities including aquaculture, livestock, and agronomic crops. The value of major horticultural crop plants in the most populated areas of Alaska is estimated at $20 million.

What has been done

Four horticulture specialties are emerging as the most important research focus areas to support commercial enterprises in Alaska: organic and sustainable horticulture; controlled environment horticulture especially season extension and moderation using high tunnels; field-grown cut flower production and Alaska wild berry cultivation and management for food and neutraceutical industries.

Results

Objectives are to evaluate annual flower and perennial landscape plant materials from commercial sources, botanical gardens and wild collections; identify plants suitable for use in the greenhouse/nursery/landscape industry through multi-year trials; conduct experiments with field-grown peonies for fresh cut flowers for export markets; establish cultivated fields for lingonberry and Alaska bog blueberry and evaluate wild-collected germplasm for fruit production in Alaska. In Controlled Environment research to develop and evaluate plant responses to water delivery, plant uptake, and runoff, while accounting for optimization of micronutrient, media pH, and EC levels, and to enhance technology transfer and research in light integral control for tomato, salad greens and potted ornamental plants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
204	Plant Product Quality and Utility (Preharvest)
401	Structures, Facilities, and General Purpose Farm Supplies
405	Drainage and Irrigation Systems and Facilities
102	Soil, Plant, Water, Nutrient Relationships
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant

Outcome #4

1. Outcome Measures

Number of new crop and animal markets identified and utilized.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	50	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The potential for diversification of Alaska's economy lies in the use of its lands. The projects proposed here show potential for utilization of Alaska's available land base that may provide entry into new markets for products from the land. There is high potential for value-added processing of high value products for the food and non-food market.

What has been done

Two agricultural crop opportunities that have resulted from recent research are high quality reindeer meat and peony crops for the floral market.

Results

Reindeer: By using enclosures and supplemental feed reindeer quickly socialize to humans. This allows producers increased control of free-ranging animals. Socialized reindeer are easily penned which reduces losses to migrating caribou and predators. Supplemental feed improved body condition and reproduction when green forage was not available. The use of enclosures and supplemental feeding shows promise to increase the productivity of free ranging reindeer herds in Alaska. Peonies: Mayesh Wholesale Flower Distributor evaluated a sample of Alaska-grown peonies when they were harvested in early July. Our trial cutting of peonies was received favorably by Mayesh. They offered to purchase peonies next year for $1.25 per stem.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
502	New and Improved Food Products
205	Plant Management Systems
302	Nutrient Utilization in Animals
601	Economics of Agricultural Production and Farm Management
701	Nutrient Composition of Food
301	Reproductive Performance of Animals
512	Quality Maintenance in Storing and Marketing Non-Food Products
306	Environmental Stress in Animals

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

xx

What has been done

xx

Results

xx

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	10	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are currently 26 golf courses in Alaska. Their locations range in latitude from 56 degrees 27 min. N to 64 degrees 55 min. N (northern most golf course in the U.S.). Each year, these courses undergo varying degrees of winter injury from disease, suffocation from ice, and winterkill. The current study was undertaken to evaluate and compare introduced cultivars from temperate regions with the native Alaska turfgrasses Nugget Kentucky bluegrass (Kbg) and Arctared creeping red fescue (Crf) as well as the commercially-used roughstalk bluegrass (Poa trivialis) on sand-based greens and fairways.

What has been done

Evaluations of the sand-based green and fairway cultivar studies for percent live cover, color, texture, and overall quality used the National Turfgrass Evaluation Program (NTEP) rating system. Second year fertility treatments were to three top performing cultivars on the new sand-based green. Evaluations were made for turf color, density, and quality, nutrient leaching using tensiometer lysimeters, and for effects on ball roll using a stimp meter. Selected cultivars were established on a commercial golf course.

Results

Information generated by this project is being utilized by golf course superintendents to change their turf management practices. Golf course superintendents at Settler's Bay and Palmer Fishhook golf courses seed their greens to Penn G-6 and 18th Green. Alaska Mill and Feed, which is the largest marketer of grass seed in Alaska, has followed our research and is marketing cultivars that do well in our research plots. In view of the large number of Alaskans that utilize turfgrass for home and recreation, the research will impact a large population over the next few years. These trials serve to introduce our research results to golf course superintendents and golfers in on-site trials. Additionally, we reported our research results to golf course superintendents and public sports field and turfgrass managers at one field day and one symposium. An Experiment Station bulletin summarizing six years of turfgrass evaluations is currently in preparation

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
601	Economics of Agricultural Production and Farm Management

Outcome #7

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska's commercial fishing sector is central to the socio-economic well being of the state. Spiny dogfish are an exciting opportunity for the state to expand its commercial fishing sector through development of a new directed commercial fishery.

What has been done

Data collected by the Observer Program was obtained from the National Marine Fisheries Service (NMFS), Alaska Region. The bioeconomic model will use historical landing data from the U.S. Atlantic coast dogfish fishery which includes the amount of dogfish landed annually, annual ex-vessel prices, target species and gear type used to harvest, harvest area, and time of year when harvested.

Results

An interview survey that will be administered to dogfish producers is being developed to determine the types of dogfish products being produced, the wholesale supply chain, product grades, product recovery rates, and physical attributes associated with each product grade.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
502	New and Improved Food Products

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

xxx

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

Program #7

V(A). Planned Program (Summary)

1. Name of the Planned Program

Natural Resource Stewardship

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2007	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	3.0	0.0	1.0	0.0
Actual	3.0	0.0	0.0	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**
104363	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
104363	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
407789	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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.

2. Brief description of the target 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.

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	200	500	225	675
2007	417	681	315	840

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	11	0	11

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 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.

Year	Target	Actual
2007	5	1

Output #2

Output Measure

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

Year	Target	Actual
2007	5	13

Output #3

Output Measure

- 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.

Year	Target	Actual
2007	4	7

Output #4

Output Measure

- 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

Year	Target	Actual
2007	1	1

Output #5

Output Measure

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

Year	Target	Actual
2007	1	3

Output #6

Output Measure

- 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.

Year	Target	Actual
2007	1	1

Output #7

Output Measure

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

Year	Target	Actual
2007	2	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	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.
2	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.
3	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.
4	Outcome target 4: Youth who participate in 4-H youth development natural resource stewardship projects will gain natural resource career job skills.

Outcome #1

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are increasing opportunities for rural Alaskans to become more engaged in natural resource management, both through existing management structures as well as new and innovative efforts. As more rural Alaskans are trained in natural resource stewardship practices, career opportunities will increase in rural Alaska.

What has been done

Natural resources workforce development efforts for rural Alaskan young adults in 2007 included emergency medical technician training on Prince of Wales Island.

Results

No quantifiable results were obtained in 2007.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	15	17

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Emergency response preparedness is an essential need for any community. Training rural teenagers and young adults in emergency medical services brings immediate and tangible value to communities that are often sorely lacking in proper medical facilities and caregivers.

What has been done

The Extension Rural Development Project, in conjunction with 4-H, worked with the Southeast Alaska Regional Health Consortium Emergency Medical Services to train teenagers to become first responders on Prince of Wales Island.

Results

17 youth were trained and received certification in 2007. The training prepared youth for the Alaska State Certified Emergency Trauma Technician certification, which can then lead to filling critical EMT-related jobs throughout Alaska.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

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.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	4	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increasing rural youth enrollment at UAF has been a high priority for the university for many years. The focus on natural resource fields has the obvious benefit of creating greater possibilities for economic growth and job creation in rural areas, since these areas are inherently rich in natural resources.

What has been done

No direct action was taken in 2007 to increase enrollments.

Results

No quantifiable results were obtained in 2007.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Emergency response preparedness is an essential need for any community. Training rural teenagers and young adults in emergency medical services brings immediate and tangible value to communities that are often sorely lacking in proper medical facilities and caregivers.

What has been done

The Extension Rural Development Project, in conjunction with 4-H, worked with the Southeast Alaska Regional Health Consortium Emergency Medical Services to train teenagers to become first responders on Prince of Wales Island.

Results

17 youth were trained and received certification in 2007. The training prepared youth for the Alaska State Certified Emergency Trauma Technician certification, which can then lead to filling critical EMT-related jobs throughout Alaska.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (plan of work development issues/Change in CES administration)

Brief Explanation

The biggest factor affecting outcomes in 2007 was the lack of communication that occurred the prior year between the former CES administration and faculty regarding last-minute revisions made to the Plan of Work at the administration level just prior to submission. Presumably the previous administration had a plan to see these goals implemented and met; however, a sudden radical change in the top administration in early 2007 left many questions unanswered and rewritten plan of work goals left in the dark minus directfaculty involvement in their formation. The next plan of work update will have to consider whether these particular outcome measure can be effectively demonstrated or whether they should be significantly revised to reflect current capacity and efforts.

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

1. 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

Evaluation Results

The Natural Resource and Community Development program is new and faculty and staff are identifying ways to target needs and evaluate the success of new initiatives.

Key Items of Evaluation

Program #8

V(A). Planned Program (Summary)

1. Name of the Planned Program

Management of Ecosystems- 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
121	Management of Range Resources	0%		10%	
122	Management and Control of Forest and Range Fires	0%		20%	
123	Management and Sustainability of Forest Resources	0%		15%	
125	Agroforestry	0%		5%	
131	Alternative Uses of Land	0%		5%	
134	Outdoor Recreation	0%		10%	
136	Conservation of Biological Diversity	0%		20%	
610	Domestic Policy Analysis	0%		5%	
803	Sociological and Technological Change Affecting Individuals, Fam	0%		10%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	3.6	0.0
Actual	0.0	0.0	7.7	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	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	406377	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	1764107	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Growth and Yield for the Alaska Northern Forest: this project provides a comprehensive database of boreal forest conditions and dynamics in Alaska. •Evapotranspiration Interior Alaska: Winter lake level measurements were obtained during 2006-2007 in an attempt to isolate a net groundwater flow component from the overall rate of loss. •Forest Growth and Climate Change: Fertilization and thinning studies were developed in birch, aspen and white spruce forest types representing young, middle and old age classes in interior Alaska. Both climatic and tree growth monitoring has continued through 2007.

•Climate sensitivity of tree growth:A comprehensive set of long-term monitoring photos was collected in 6 forest types (white spruce, aspen, Alaska birch) including both young post-fire regenerating forest and mature forest. The study is documenting patterns and events in forest succession and forest health and began in 1988.

2. Brief description of the target audience

•Growth and Yield for the Alaska Northern Forest: Federal, state and community land managers, state and federal agency personnel, commercial and private foresters, forest industries.

•Evapotranspiration in Interior Alaska: Local, state, and federal water resource managers and the scientific community interested in hydrology, lake-side property owners. •Forest Growth and Climate Change: State and private forest and land managers; undergraduate and graduate students, state of Alaska & community governments.
•Climate sensitivity of tree growth: Congress - 2 invited testimonies, individual briefings of 2 members, 6 staff. Alaska Legislature - individual briefings of 2 members. Alaska Governor's Cabinet - sub cabinet working group on climate change adaptations. Providing information in response to requests. Alaska village residents. News media. Alaska resource managers.Young scientists interested in long-term forest research - University senior thesis students, undergraduate applicants to graduate school, interdisciplinary Resilience and Adaptation IGERT project. •Graduate and undergraduate students.

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	300	1500	0	0
2007	300	1759	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	9	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Identify agricultural and forestry management practices that minimize environmental risks

Year	Target	Actual
2007	3	3

Output #2

Output Measure

- Models developed

Year	Target	Actual
2007	5	6

Output #3

Output Measure

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

Year	Target	Actual
2007	3	11

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Changes in land-use patterns that will support sustainable development
2	Adoption of models for ecosystem management.
3	Regulatory agency and private sector adoption of soil and wetlands criteria for Alaska
4	Reduce instances of surface water contamination related to resource development
5	Adoption of criteria for effective conflict resolution

Outcome #1

1. Outcome Measures

Changes in land-use patterns that will support sustainable development

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

State and private forest managers benefit from the Forest Inventory of Alaska (FIASKA).

What has been done

The 191 Permanent Sample Plots (PSP)we have established is the only system of remeasured forest stands in Alaska.

Results

The PSP data provide useful insights for foresters and forest managers and is critical for empirical modeling of forest growth.This data stream becomes more useful over time as the plots are remeasured. The periodic remeasure provides a snap shot of the site, while repeated site visits provides the more valuable long-term information. This data enables modeling of forest dynamics, such as growth and yield. FIASKA can also be used to monitor and predict the effects of climate change on boreal forests. The new LOGS remeasurement helps land managers to make better cost effective prescriptions for tree regeneration and plantation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
125	Agroforestry
610	Domestic Policy Analysis

Outcome #2

1. Outcome Measures

Adoption of models for ecosystem management.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alaska Dept of Natural Resources and the U.S. Natural Resources Conservation Service use ecosystem models to make informed decisions about management and influence policy decisions. State and local researchers and state and national policy decision makers concerned about climate change requested this information.

What has been done

Mathematical models were developed to predict the growth of floodplain white spruce along the Yukon River and the Kuskokwim River. Data continues to be collected on Long-Term Ecological projects at Bonanza Creek Experiment Forest for entry in the LTER database. Cooperative work was done with the French Polar Research Institute. A USGS group was hosted on the floodplain and an International Disturbance Dynamics in the Boreal Forest field trip visited a number of research sites in upland locations.

Results

A wave of tree mortality and forest health problems above the typical level was detected. Most of the major factors responsible are triggered or intensified by warmer temperatures. If this continues a forest health crisis involving upland white spruce and possibly other species is highly likely in the next 15 -30 years. Testimonies were provided to the U.S. House of Representatives, the Committee on Science and Technology, and the Select Committee on Energy Independence. Seminars were presented to resource managers, state and county legislators, national policy makers, Alaska professional foresters, elementary school classes across the U.S. and Alaska.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
122	Management and Control of Forest and Range Fires
610	Domestic Policy Analysis
125	Agroforestry
136	Conservation of Biological Diversity

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Alaska Regional Office of USGS is using this data for a preliminary estimate of the soil carbon status in Alaska. Based on current climate models, the permafrost under the black spruce forest will gradually thaw and the soil will be warmer and drier.

What has been done

One aspen and two black spruce sites were sampled. Soil descriptions from these and other plots will permit results of both studies to be tied together. In the northern region, many aspen and birch stands occur as islands occupying high knobs and terraces in black spruce forests. Most of the mixed to pure stands grow in well to somewhat excessively drained soils formed in coarse to medium textured glacial deposits, such as eskers, kame terraces, outwash, or residuum from fractured bedrock.

Results

The soil carbon study documents a basic difference in carbon accumulation mechanism for the boreal forest compared to the arctic tundra. In addition to surface accumulation, arctic tundra soils accumulate carbon through cryoturbation and, thus, store carbon deep within the profile. In the upland boreal forest, the main mechanism of carbon storage is through surface deposition of forest vegetation litter and mosses and lichens, with storage mainly in the forest floor. There is less carbon storage in the lower soil horizons than in arctic soils. In the past two years all soil sampling associated with the Permanent Sampling Plots was in cooperation with the USDA National Soil Survey Center and all their soil analyses are complete. Based on field and these data, the PI and coauthors have initiated a manuscript describing the soil carbon status across the boreal forest of Alaska.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
610	Domestic Policy Analysis
125	Agroforestry
123	Management and Sustainability of Forest Resources

Outcome #4

1. Outcome Measures

Reduce instances of surface water contamination related to resource development

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The State of Alaska Dept. of Natural Resources, the U.S. Natural Resources Conservation Service (NRCS), and the Salcha-Delta Soil & Water Conservation District and concerned users of Harding Lake in interior Alaska. This model gives managers an idea of the magnitude of past lake level fluctuations and an indication of what to expect in the future under various assumptions of weather and management actions.

What has been done

Winter lake level data was obtained to isolate a net groundwater flow component from the overall rate of loss. A spreadsheet of a monthly lake water balance model was run using precipitation, pan evaporation, and runoff data from nearby weather and runoff stations for the time period 1950 - 2007. The simulation was calibrated with 2 measured lake levels, from 1978 and 2006. The ground water coefficient was the main calibration parameter.

Results

This is the fourth year of monitoring lake levels and represents the first year of data after the divergent feeder stream was re-directed to the lake. Operational problems, including channel icing, caused much of the runoff to by-pass the control structure and result in a small but unknown contribution to the lake. The lake level data do verify that, in contrast to the previous 3 summers, the lake did not decline this summer. On the more general level, we found a good statistical relationship between mean monthly Kt (ratio of measured global radiation to extra-terrestrial radiation on a horizontal surface) and mean monthly sky cover, by including an index of optical air mass for each month. This relationship holds well for a wide variety of locations in the United States and should help expand estimates of global radiation and therefore evapotranspiration to areas without primary radiation data. This is particularly significant in Alaska with its sparse data network.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
125	Agroforestry

610	Domestic Policy Analysis

Outcome #5

1. Outcome Measures

Adoption of criteria for effective conflict resolution

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Recently the ADFG has developed several successful collaborative wildlife management plans in interior Alaska that involve everyone from well-to-do urban sport hunters and environmentalists to poor rural Native subsistence hunters. The research supported by this project was adopted by the ADFG and made a substantial contribution to the success of these planning efforts.

What has been done

A survey was developed to assist in measuring the extent to which the public has been empowered by a given public involvement technique. The instrument has been tested and will soon be applied to community mapping projects to assess their impact on the participants. For example, the survey considers whether the participants in these efforts are more likely to attend public meetings and hearings, more likely to vote, and/or feel more capable of influencing public policies following their experience with the project.

Results

Randy Rogers, Wildlife Planner, ADF&G said Dr. Todd shows ability to design and implement teaching strategies and projects that excite and motivate students about projects. The Fortymile Caribou Herd Recovery Team's work led by Dr. Todd was widely recognized as a hallmark achievement in Alaska wildlife management planning and received special recognition from the Alaska Land Managers Forum. He uses Dr. Todd's dissertation 'Designing Effective Negotiating Teams for Environmental Disputes: An Analysis of Three Wolf Management Plans' is his primary guide to establishing collaborative citizen-based wildlife management planning teams. Susan has a high degree of sensitivity to cultural differences and an ability to work in a congenial manner with persons of diverse backgrounds and viewpoints. Her experience in negotiating solutions with indigenous Native people and other interests has helped ensure that less-advantaged groups are always involved in planning efforts

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Fam
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
610	Domestic Policy Analysis

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

Brief Explanation

Climate change and policy decisions are the most important external factors that affect these outcomes.Since the majority of Alaska is consumed by national parks, reserves and preserves these management issues are national issues as well. In many areas of Alaska moisture stress from drought has played a large part in tree decline, while climate change continues to suggest threats in the not-to distant future. Lack of adequate funding continues to hamper efforts to understand these threats.

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #9

V(A). Planned Program (Summary)

1. Name of the Planned Program

High Latitude Soils- 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	0%		20%	
104	Protect Soil from Harmful Effects of Natural Elements	0%		20%	
122	Management and Control of Forest and Range Fires	0%		20%	
123	Management and Sustainability of Forest Resources	0%		20%	
125	Agroforestry	0%		20%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	4.9	0.0
Actual	0.0	0.0	2.8	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	166593	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	199949	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	94902	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Black spruce forest soils :Investigation of the physical environment and soils' properties continued, aspen and black spruce sites were described and sampled. In the past two years all soil sampling associated with the Permanent Sampling Plots was in cooperation with the USDA National Soil Survey Center and all their soil analyses are complete. •Soil organic matter pools: A field experiment with smooth bromegrass and three fertilizer treatments and two cutting frequencies was conducted. Soil samples were taken from one quarter of the microplot. Plant samples were dried and ground for analysis of total nitrogen and 15N concentration. •Soil moisture availability:The objective of this project is to understand how chronic moisture stress will alter ecosystem function and carbon balance. The project is based on a series of 15 m x 10 m throughfall exclusion shelters that have been erected each summer since 1989 in three replicate upland and three replicate floodplain mid-successional stands.

2. Brief description of the target audience

•Black spruce forest soils:Managers in USDA Forest Service Private Forestry, Alaska State Division of Forestry. .Researchers groups - provide data for Yukon Basin carbon assessment and climate change modeling. 3.Alaska native corporations •Soil organic matter pools:Research communities, soil laboratories, fertilizer agencies, producers, federal and state agencies: USDA/ARS and NRCS, State Department of Natural Resources Division of Agriculture. •Soil moisture availability:State and private forest and land managers, undergraduate and graduate students. Research efforts are reported through the AgroBorealis Annual Report, publications and contributes to the following course curricula: NRM 304 - Perspectives in Natural Resource Management; NRM 672 - Nutrient Cycling and Soil Fertility. Research is disseminated through the following web sites. http://www.uaf.edu/salrm/faculty/valentine.htm http://www.lter.uaf.edu/

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	40	60	0	0
2007	40	60	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	7	7

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Development of a climate/soil model for boreal forest regions

Year	Target	Actual
2007	1	1

Output #2

Output Measure

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

Year	Target	Actual
2007	1	1

Output #3

Output Measure

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

Year	Target	Actual
2007	0	1

Output #4

Output Measure

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

Year	Target	Actual
2007	5	7

Output #5

Output Measure

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

Year	Target	Actual
2007	150	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of public and private land managers using these models and publications.
2	Number of land managers that change their practices in response to our research.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Most Alaskans desire sustainable management and development. Information gathered by researchers help inform managers and the concerned public.

What has been done

Publications, workshops, Congressional testimony, briefings, seminars both at the university and in local towns and villages,field trips, website, scientific collaborations, and agency partnership are all used to inform stakeholders of research findings.

Results

A more informed clientele.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
123	Management and Sustainability of Forest Resources

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Black spruce soils: environmental engineers, road and land planners, or any who must deal with permafrost issues; Controlling Soil N Availability: farmers and producers; scientists.

What has been done

Black spruce soils: Investigation of the soil carbon of permafrost lands through soil analysis; and investigations;
Controlling Soil N Availability: Soil was tested from a field experiment with smooth bromegrass treated with several fertilizer treatments.

Results

Black spruce soils: The study documents a basic difference in carbon accumulation mechanism for the boreal forest compared to the arctic tundra. In addition to surface accumulation, arctic tundra soils accumulate carbon through cryoturbation and, thus, store carbon deep within the profile.
Controlling Soil N Availability: The project will provide tools for fertilizer recommendation for crop production in Alaska, and for assessing enhanced nitrogen mineralization in natural ecosystems under climate change scenario. The will help us to improve nutrient management in arable land of Alaska, and to understand nitrogen dynamics in natural ecosystems.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
125	Agroforestry
102	Soil, Plant, Water, Nutrient Relationships

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

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #10

V(A). Planned Program (Summary)

1. Name of the Planned Program

Natural Resource Use and Allocation- 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
134	Outdoor Recreation	0%		25%	
605	Natural Resource and Environmental Economics	0%		25%	
608	Community Resource Planning and Development	0%		25%	
610	Domestic Policy Analysis	0%		25%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

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

Year: 2007	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	1.0	0.0	0.8	0.0
Actual	0.0	0.0	0.0	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	141435	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	216473	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•Impact Analysis for Alaska Natural Resource: Economic analysis and regional economic models have been used to evaluate the reindeer industry's economic contribution to the region and the 'cost' of the caribou related industry decline; a pilot risk insurance program that was under consideration for the Bristol Bay salmon fishery; the Alaska crab industry; and opportunities for the state of Alaska to diversify its economy through participation in carbon sequestration markets. •Innovative Methods of Involving the Public in Environmental Decisions: A Survey of Greenmaps Worldwide continued with twelve test surveys returned from Ireland, Sweden, Holland, Japan and the US. Students developed a database of over 600 environmental assets and liabilities in the Fairbanks area. The database will be linked to GoogleMaps. A planning class facilitated breakout groups in the Fairbanks Downtown Anti-Sprawl project. They measured and photographed every building and road in a 20-block area. This information was used by the Downtown Association to develop a plan for downtown. •When Laws Affecting the Environment Conflict: Focus on Public Lands: Inconsistencies were examined between the State of Alaska's Intensive Management Statute and the laws regulating wildlife management on National Park Service lands. Inconsistencies were examined in the implementation of the Marine Mammal Protection Act regarding the native Alaskan hunting exemption and the meaning of the term "waste". Also examined were the Migratory Bird Treaty Act in relation to public lands clearing and development. The Fish and Wildlife Service, saddled with administering this statute, has failed to provide regulatory guidance to agencies on the matter of incidental takes. The issue of Assisted Migration, a method of dealing with increasingly endangered flora and fauna in a time of climate change which is currently being debated by Conservation Biologists is being examined. This work attempts to analyze the legal support as well as the legal obstacles to such a course of action.

2. Brief description of the target audience

•Impact Analysis for Alaska Natural Resources:The Alaska Reindeer Herders Association and Alaska reindeer herders. The Alaska Department of Fish and Game, The Bureau of Land Management, the Alaska Department of Fish and Game-Commercial Fisheries Division, Bristol Bay salmon harvesters, and processors. The USDA Risk Management Agency and U.S. Senate. The Alaska Crab Coalition, Alaska crab harvesters and processors. The North Pacific Fisheries Management Council The Alaska State Legislature and the Alaska Department of Natural Resources, Division of Forestry.

•Innovative Methods of Involving the Public in Environmental Decisions: Residents of the state of Alaska, state and city policy and decision makers, Fairbanks Downtown Association, UAF students. •When Laws Affecting the Environment Conflict: Focus on Public Lands:Federal land managers, conservation biology community, legal scholars.

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	315	500	0	0
2007	350	1700	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	13	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2007	6	7

Output #2

Output Measure

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

Year	Target	Actual
2007	150	153

Output #3

Output Measure

- Identification of projected policy changes on communities and families

Year	Target	Actual
2007	0	4

Output #4

Output Measure

- Number of business or development plans implemented

Year	Target	Actual
2007	0	0

Output #5

Output Measure

- surveys

Year	Target	Actual
2007	1	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Increased employment opportunities
2	Increased recreational use.
3	New policy/regulations directed toward appropriate resources development
4	Increased local businesses and job opportunities in rural communities and villages
5	Energy-efficient technology adopted in rural communities

Outcome #1

1. Outcome Measures

Increased employment opportunities

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Reindeer, salmon, crab and carbon studies were needed by natural resource managers to manage for sustainability and increases in the industries. Rural communities depend on the harvest of meat animals and fish and shellfish for economic stability. Carbon credit trading is a potential economic opportunity for the state of Alaska.

What has been done

Regional economic models were developed: to evaluate the reindeer industry's economic contribution to the region and the 'cost' of the caribou related industry decline; the contribution of the crab industry to Alaska, Washington and the nation; A feasibility analysis was conducted for a pilot risk insurance program for the Bristol Bay salmon fishery which led to a recommendation against implementation. Another project study examined opportunities for the state of Alaska to diversify its economy through participation in carbon sequestration markets.

Results

The study was disseminated and presented to the Alaska Reindeer Herders Association at their Annual Meeting in Nome Alaska. The salmon results were delivered through public meetings with users groups in Anchorage, Dillingham and King Salmon. Direct testimony was given to the Risk Management Agency USDA and to senate staff. Alaska crab industry study results were disseminated to industry through presentation at the Annual meeting of the principle harvesters' organization and through presentations to the Crab Plan team of the North Pacific Fisheries Management Council. The carbon sequestration study was disseminated directly to the Alaska Department of Natural Resources, Division of Forestry and the Fairbanks Chamber of Commerce. Results were referenced and used in university courses including ECON 235&335 Introductory and Intermediate Natural Resource and Environmental Economics and NRM/ECON/ANTH/BIO 647 Regional Sustainability.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

Increased recreational use.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Alaska Dept of Fish & Game collaborative wildlife management plans in interior Alaska that involves everyone from well-to-do urban sport hunters and environmentalists to poor rural Native subsistence hunters addressed in Innovative Methods of Involving the Public in Environmental Decisions.

What has been done

The research supported by this planned program was adopted by the ADFG and made a substantial contribution to the success of these planning efforts.

Results

A survey was developed to assist in measuring the extent the public has been empowered by a given public involvement technique. The instrument was tested and will soon be applied to community mapping projects to assess their impact on participants. Randy Rogers, Wildlife Planner, ADF&G wrote 'Susan Todd has always shown an ability to design and implement teaching strategies and projects that help students get excited and motivated about planning and also gain hands-on experience with planning projects. The Fortymile Caribou Herd Recovery Team's work led by Dr. Todd was widely recognized as a hallmark achievement in wildlife management planning and received special recognition from the Alaska Land Managers Forum. We have made considerable progress in developing collaborative wildlife management programs in interior Alaska and this has been made possible, in part, through the research and example of Susan Todd. This serves as an example for planning projects throughout rural Alaska.'

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
134	Outdoor Recreation

Outcome #3

1. Outcome Measures
New policy/regulations directed toward appropriate resources development

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

This work relates to the Migratory Bird Treaty Act and analyzes why agencies continue to violate the statute, what they are risking, and suggests regulatory changes for Fish and Wildlife that could correct this regulatory gap. This work will be of interest to all federal land and wildlife managers who deal with migratory birds, particularly in Alaska. As yet, no policy or regulatory changes have been made.

What has been done

Reviews were made of the AK Intensive Management Statute and laws regulating wildlife management on National Park Service lands and in the implementation of the Marine Mammal Protection Act regarding native Alaskan hunting exemption and the meaning of the term 'waste'. Review was made of the Migratory Bird Treaty Act in relation to public lands clearing and development and of the issue of Assisted Migration.

Results

Inconsistencies were found between the State of Alaska's Intensive Management Statute and the laws regulating wildlife management on National Park Service lands and has been published by the Alaska Law Review; a manuscript which examined several inconsistencies in the implementation of the Marine Mammal Protection Act regarding the native Alaskan hunting exemption and the meaning of the term 'waste has been written and accepted for publication; and an examination of the Migratory Bird Treaty Act in relation to public lands clearing and development was made. The Fish and Wildlife Service, saddled with administering this statute, has failed to provide regulatory guidance to agencies on the matter of incidental takes. This work has been published by the Journal of Land Use and Environmental Law. An examination is being made of the issue of Assisted Migration, a method of dealing with increasingly endangered flora and fauna in a time of climate change which is currently being debated by Conservation Biologists. This work attempts to analyze the legal support as well as the legal obstacles to such a course of action. A manuscript will then be prepared for publication.

4. Associated Knowledge Areas

KA Code	Knowledge Area
610	Domestic Policy Analysis

Outcome #4

1. Outcome Measures

Increased local businesses and job opportunities in rural communities and villages

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The heavy restrictions on harvesting of Tongass National Forest has caused the closing of lumber mills and forestry related industries and has had a major negative impact on communities in Southeast Alaska. The purpose of the Forest Products Research, Education and Extension program in Alaska is to conduct research to assist with the restructuring of the Forest Products Industry in Alaska.

What has been done

Information gained in new engineering material properties for an Alaska white spruce wood-plastic composite will advance technical knowledge for engineers and resource managers. New applied knowledge was created in the form of information on millwork yields from western hemlock lumber produced from timber from SE Alaska. For the cut stock yields and defects project, software was developed to allow estimation of yields of millwork parts from western hemlock lumber produced from southeast timber.

Results

A new initiative to investigate wood-plastic composites using municipal waste wood, fire-killed trees and sawmill waste is a cooperative effort between UAF and Washington State. Anchorage municipal wood waste is diverted from the land fill, saving landfill tipping fees, associated costs and is chipped before it goes into making compost and chips, but there is much with no identifiable end product. In 2007, 2000 lbs were shipped to Washington State and mixed with polypropylene and resins to form composites which will be sent to UAF for extreme weather testing. Birch shavings are being collected at a small mill in Wasilla for future composite products. Millions of acres of trees in Alaska burned over the past 5 year. Fire-killed trees from the Tanana Valley will be collected, chipped and sent to WSU for more composite products. A market study is evaluating current and future demand for wood plastic composites in Alaska in preparation of attracting new industries to Alaska.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

Outcome #5

1. Outcome Measures

Energy-efficient technology adopted in rural communities

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

This study, in close cooperation with the Department of Natural Resources, provides primary information necessary for meeting a legislative mandate to investigate the potential of carbon markets.

What has been done

A regional economic model was constructed.

Results

This model is being used to investigate the potential of carbon markets and carbon offsets. The use of wood to offset diesel use offers several benefits to the state of Alaska: communities in forested areas could use their own resource, it is cheap and less price volatile than oil, its transportation and storage is environmentally safe, it could be implemented in conjunction with the states firewise programs to remove potentially hazardous timber fuel surrounding communities, and it offers economic benefits to the local communities in that local labor and resources are used, rather than oil that must be imported. A Master's student thesis resulted. Duval, J.E. Market Opportunities for Carbon Sequestration in Alaska. M.S. Thesis, University of Alaska Fairbanks.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

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

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

1. 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

Evaluation Results

Key Items of Evaluation