Cooperative Extension System

Annual Report of Accomplishments

2006

University of Idaho Extension
College of Agricultural and Life Sciences

A. PROGRAMS

GOAL 1: AN AGRICULTURAL SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY.

Overview

a. Outputs:

University of Idaho Extension faculty devoted 31.48 FTEs of activity in projects related to sustainable and competitive agriculture. Extension faculty produced 31 journal articles, 81 abstracts and proceedings, 49 project reports, 12 book chapters, 130 extension publications, and 171 popular press articles. Educational presentations included 180 workshops, classes and short-courses, 51 field days, 29 posters, and 337 other educational presentations. In total, faculty and staff made 32,124 face-to-face teaching contacts.

Extension education addresses issues important for most of Idaho's 100+ commercial crops and animal industry products. Expertise available through Extension includes traditional agronomic, animal science, and economics disciplines as well as interdisciplinary teams and transformational educators. Sustainable and globally competitive agriculture programs are closely inter-related with programs described under Goals 4 and 5.

b. Outcomes:

Extension outcomes related to agriculture are assessed through a variety of tools. The effectiveness of educational programs is documented through evaluation data, feedback collected at various schools and conferences, and through growers' yield and profitability data. Short-term learning outcomes are often measured using pre- and post-tests, conducted as part of many classes, workshops and short courses. These evaluations document learning that has occurred related to all manner of agricultural production and are described in the following sections. For example: changes in knowledge are verified for 481 beef producers who became "BQA Certified" during 2006. These producers have demonstrated their understanding of principles and applications of production practices that are proven to improve the quality of their product and the price they receive at market.

Adoption of recommended practices has been documented for a variety of programs in agriculture. For example, among 11 SE Idaho dairy operators who learned about organic milk production, one producer is currently selling organic milk and two others are undergoing inspection for organic milk production and are expected to be selling organic milk in 2007. Organic milk price is consistently over $22.00/cwt—more than double the price for regular milk.

Long-term outcomes that result in a change in condition include new varieties and releases made available to producers. For example, based on performance in our

variety trials, the Idaho Barley Commission has approved the initial seed increase of Waxy Nebula so that seed will be available for planting in spring 2008.

c. Impacts:

A new program in southwestern Idaho improves identification and characterization of new and emerging plant diseases/pathogens in home gardens, nurseries, fields and orchards. Development of a web-based sample submission, diagnosis and archival system (Idaho Plant Diagnostic System), funded through Western Plant Diagnostic Network (WPDN), has improved the efficiency and quality of the sample diagnostic process. Improved diagnostic service 1) reduces the cost to control the pathogen through more accurate targeting and treatment prescriptions; and 2) reduces crop losses because more rapid response reduces exposure to damaging pathogens.

A survey of TVPestAlert website users, conducted late in 2005, reported that 50.7 percent of users increased their field scouting; ten percent of users were able to eliminate at least one pesticide application; 28 percent found their pesticide applications to be more effective; and 11 percent were able to reduce the total amount of pesticide applied to crops. Savings to potato growers that eliminate one application treating for late blight would be approximately $16 per acre or $8,000 per average size farm. For 100 potato growers (of the 400 TVPANet subscribers) the total cost savings for those ten percent who eliminated a single pesticide application is $80,000 per year. Similar savings can be calculated for the other 300 subscribers who are growing sugarbeets, onions, small grains, and seed crops.

Data gathered from replicated trials on potato growers' farms showed that the BMPs, on average, had nearly equal yield and crop quality. More importantly, the net returns averaged 3.2 percent greater on fields where BMPs were followed; the significant increase was due to reduced inputs and the nearly equivalent yields and crop quality. This project illustrated to growers the concept of maximum economic yield and was a powerful force in motivating many growers to alter their management strategies. As a result, 53 additional potato growers have provided documentation that they have adopted one or more BMPs affecting more than 100,000 acres in the region; and changes in cropping sequence and rotation have been documented on 87,000 acres of potato ground.

Two years after completing the Lost River Grazing Academy curriculum, data indicate that the number of animals being grazed by graduates increased by 1,189 head. This equates to an average of 25 additional animals per producer. These producers also indicate that 5,807 additional acres are now under a managed grazing system. The total number of days grazed increased by 32 percent. Respondents also reported 1) a decrease in the number of weeds, 2) fertilizer costs remaining the same or declining, 3) a decrease in animal health care costs and 4) a decrease in their winter feeding costs. And finally, respondents reported an increase in their overall profit.

d. Accomplishments:

Extension accomplishments in Goal 1 programs are assessed by comparing planned outputs to actual outputs, reported as performance measures. Planned outputs for goal 1 were exceeded in all cases.

	Number Planned	Number achieved
Face-to-face teaching contacts	24,294	32,124
Schools and Workshops	67	105
Extension-type publications	54	73
Journal articles, proceedings and abstracts	20	31

Performance of different Topic Teams varied. For some teams, planned outputs far exceeded actual accomplishments. For most teams, however, planned outputs were surpassed by accomplishments. As this is the first year in which outputs have been planned in such detail, there is insufficient data to determine success. It is expected that more accurate targets will be established for future years.

e. Support:

Combined efforts of faculty and staff generated $2,750,210 in grant activity related to Goal 1. Expenditures of appropriated funds included approximately $1,363,883 from Smith Lever ($1,268,633 from b&c and $95,250 from d lines for animal and pest management); $1,961,223 in State appropriations for Agricultural Research and Extension, and $31,196 in county appropriations for University Extension.

Beef Topic Team

a. Input and output summary

UI Extension invested time and effort of 16 individuals (two specialists, 13 educators, and one professional staff person) who contributed a total of 4.1 FTEs to Beef Team activities. Faculty reported publication of 11 academic papers, abstracts, and proceedings; 2 project reports; 17 industry papers; and 25 Extension publications. Eleven beef schools and 18 BQA workshops were held, along with 7 field days. More than 60 other educational presentations, and approximately 230 office and farm visits were reported. The team reached 9,159 learners. The Beef Team reported the majority of their activities under two project headings: beef production and management, and beef quality assurance.

Beef Cattle Production and Management:

Outreach materials and information on Beef Production and Management Practices were distributed. Publications include a peer-reviewed fact sheet, 11articles on timely topics relative to beef cattle producers, and a summarized report of the A-to-Z Inc. retained ownership program. Presentations were given at Winter Beef Schools in Eastern Idaho on Heifer Development strategies.

Research: Beef cattle-related research has focused in three areas: 1) efficiency in beef cattle, 2) improving quality and value of market dairy cow carcasses, and 3) trace mineral supplementation in beef cattle production. Outputs of beef cattle-related research include two journal articles in peer-reviewed journals (one published, one accepted), an abstract, and a proceedings paper.

UI Beef Schools: Extension conducted 11 UI Beef Schools in Southern Idaho. Participants at the beef schools were taught about a variety of topics including National Animal Identification System (NAIS) in Idaho, individual animal identification options, Beef Quality Assurance (BQA) management techniques and certification, maintaining cow herd health, biosecurity and low-stress livestock handling. University of Idaho and Oregon State University Extension Educators collected carcass information on 4-H/FFA market beef from seven Idaho and five Oregon counties.

Electronic Identification Device (EID) Project: This project has continued to evaluate the retention of the EID tags and the feasibility and usefulness of the technology in the corral. Three new producers came on board in 2006 for an additional 500 head of cattle. Retention of the tags in mature cattle was 99 percent. On Fort Hall two new Native American producers are tagging cattle with EID tags and two are working on synchronization projects. Through the 4-H program we demonstrated the use of EID in the market steers. Producers who attended schools learned about Electronic Identification and 40 producers were certified in Beef Quality Assurance. Newspaper articles were used to reach producers unable to attend the programs.

A-to-Z Inc. retained ownership program: Extension continues to serve individual producers with ration formulation, hay and soil tests, bull selection based upon EPD's, and market outlook. In the 2005-2006 feeding trial, eight ranches consigned 124 calves (60 steers, 64 heifers) as part of the A-to-Z retained ownership project. Ranch reports were prepared and distributed, a packing house tour was conducted, one year-end meeting was held, and a summary report was published.

6th Grade Science Day: This was the third year for the 6th Grade Science Day. The focus was "Our Food Comes from Agriculture". Extension faculty collaborated with local beef producers and natural resource agencies to present four different workshops covering topics on beef production, forage, irrigation and soils.

Beef Quality:

Idaho Beef Quality Assurance (BQA) Program: Funding provided by the Idaho Beef Council (two grants totaling $26,565) is helping to reinvigorate the BQA Program in

Idaho. Five UI Extension faculty invested 1.2 FTEs of effort in this project. Outputs of the Idaho BQA Program include workshops, newsletters, and a new Idaho BQA Certification Manual—of which 1,000 copies were printed for use in Idaho. BQA Certification and recertification was offered via 18 workshops attended by of over 550 people. A database was created to compile Idaho BQA Certification data. Two editions of the new Idaho BQA Newsletter were created, printed, and mailed on a quarterly basis to 1,100 recipients.

b. Program Outcomes

Beef Cattle Production and Management:

Electronic Identification Device (EID): Demonstrating several panel arrangements, we ultimately achieved more than 99 percent precision reading tags while cattle moved through the chutes. During the spring cow work, only 70 percent of the tags were read with the EID panels installed in the working chute. During weaning, the panels were utilized at the scales as calves were individually weighed. Precision for this method exceeded 99 percent but required that someone made sure that the calf came in contact with the panel.

Research Projects: As a result of trace mineral research, producers will be provided with information on how to monitor and manage trace mineral status, concentrations and sources of supplemental trace minerals needed in the diet to overcome antagonists, and variation of repletion/depletion rates among trace mineral sources in order to avoid a deficiency situation and sub-optimal performance resulting in economic losses.

UI Beef Schools: The Beef Schools increased producer knowledge and awareness about Beef Quality Assurance (BQA), Animal Identification and the National Animal Identification System (NAIS). Of the 139 beef school participants, 61 became BQA certified. Survey responses indicate that program participants acquired new skills to perform artificial insemination. Carcass data from 230 4-H/FFA fair steers was returned to County Extension Educators. Youth, parents and leaders learned the relationship between carcass quality and the management of their fair steers.

A-to-Z Inc. retained ownership program: Outcomes from the A-to-Z program this year include increased knowledge and changed attitudes about electronic identification, breeding programs and marketing. Participants rated it highly successful and informative and requested that the program continue. Several producers are using their individual data to market their calves to buyers and on satellite and internet marketing systems.

6th Grade Science Day: School children, teachers and chaperones learned how the rumen functions and why cattle can survive on feeds that humans cannot. Most participants came from urban areas and some children were unaware that meat and milk came from animals and not just the store.

Beef Quality Assurance:

Out of the 559 BQA workshop participants, 86 percent completed the voluntary BQA Certification Test and Contract and became BQA Certified in the program for three years, resulting in 481 BQA Certified producers. Based on responses to evaluations, producers felt that BQA was important to the cattle industry, and actually more important than the NAIS. Results of evaluation show that: 1) 94 percent of the producers who thought they were in compliance learned otherwise, 2) the number of producers who planned to follow BQA practices doubled, and 3) 98.5 percent of attendees who completed a written evaluation indicated that they would recommend this workshop to others.

c. Sources of Funds

The Beef Team was supported by approximately $169,581 from Smith-Lever 3(b&c) and $45,590 for animal health (3(d)) funds; $262,162 in State appropriations for Agricultural Research and Extension; and $4,179 in county funds for University Extension. Members also brought in $113,000 in grants from Federal, State, and private sources.

d. Scope of the Program

The Beef program is conducted statewide, with emphasis in the southern 2/3 of counties. The team members reported 0.3 FTEs of multistate activity primarily in support of the Northwest Pilot Project of the National Animal Identification System, and also in support of the 4-H BQA project with Oregon.

Cereals Topic Team

a. Inputs and Outputs

Extension and integrated research projects in cereals were reported by 19 faculty members who contributed a total 5.15 FTEs in support of activities in the Cereals program. Cereals faculty reported publication of 11 journal articles and book chapters, three abstracts and proceedings, 18 project reports, ten Extension publications, and 25 articles in popular press. The team delivered six cereal schools, four workshops, eight tours and field days, and 57 educational presentations reaching 3,409 learners.

IPM Project:

Six presentations were delivered in the tri-state region about IPM principles and practices for agronomic crops at commodity schools, field clinics and other extension workshops in Idaho and adjoining PNW states. A number of faculty offered pesticide recertification workshops in 2006. UI faculty conducted 12 small grain cereal and two field corn weed control trials in Southern Idaho. Results from 2005 research were shared at UI winter cereal schools and FWAA Fertilizer and Chemical Conference. Information was published in the Western Society of Weed Science Research Progress Report and UI Winter Commodity School Proceedings.

Testing Varieties and Enhancement Products:

Variety performance information from the 2006 season was prepared and distributed to seed dealers in ID and eastern OR. Producers received performance information via newsletters and trade magazine articles. Tours of variety trials were conducted on Research and Extension Centers and on cooperators' farms.

Thirty-seven small grain, corn, and legume variety performance trials were conducted throughout Idaho. The results of these trials were shared with the industry in magazines, newsletter articles, commodity progress reports, mailings to breeder collaborators, and web based media. Field tours were held for these trials and at six winter grower education schools.

Seed treatments with chemical and biological crop enhancing materials were evaluated through a series of ten field experiments. Results from these experiments reveal many differences caused by products, but some materials provided no response. Unbiased information about products sold to enhance crop performance is developed and integrated for dissemination in scholarly publications and meetings.

Schools:

Eastern Idaho Cereal School was attended by 110 producers and field men who received three credit hours towards their pesticide recertification requirements. A Northern Idaho Cereal Production and Management workshop was attended by 21 producers. Pesticide recertification credits were also offered at this workshop.

Communications

Producers were provided variety performance information and cereal production BMPs via newsletters and magazine articles. Three Cereal Sentinel newsletters were produced and distributed throughout Idaho and the grain growing regions in Oregon and Washington.

b. Program Outcomes

IPM Project:

Cereal Parasite Release: The Cereal Leaf Beetle Insectaria was maintained for the third year in conjunction with the Idaho Dept of Agriculture (ISDA) to facilitate CLB parasite introduction and establishment. Insectaria serve as the site for *Anaphes flavipus* egg parasite releases. Though they have not been established, a previous larval parasite release resulted in parasitism levels of 50 percent to 100 percent in this nursery providing effective biocontrol. The ISDA has decided to use the site in 2007 for collecting parasitized larvae to distribute elsewhere in the state and region.

Nearly 300 regional industry professionals and growers learned about insect pest management by attending seminars delivered during 2006 in Idaho, Oregon and Washington. Three columns on the *UI AgPage* of the Lewiston (Idaho) Tribune newspaper reached thousands of producers who learned topical information about pests (aphids), pesticides and IPM principles.

Testing Varieties and enhancement products:

Seed dealers were provided with the information needed to include the latest variety releases and performance data in their inventories to support the local production system. Seed dealers continue use performance information to make decisions about their inventory and to guide their recommendations to their customers.

Information and recommendations about hard red spring (HRS) wheat production and management enabled producers to determine the potential risks and benefits of this market class. Spring planted acreage and production of HRS increased (from 30,000 to 300,000 bu) in Idaho.

Barley varieties, hulled and hull-less, were identified that are best adapted to western Idaho. As a result, Treasure Valley Renewable Resources, Inc., a barley fractionation-ethanol enterprise, has selected varieties to begin contracting for their barley fractionation facility. Based on performance in our variety trials, the Idaho Barley Commission has approved the initial seed increase of Waxy Nebula so that seed will be available for planting in spring 2008. The information will also be used to establish the contract price for barley used in the facility.

The positive impacts of food legume variety trials continue to be expressed as growers adopt new varieties suited to their growing conditions and that have beneficial characteristics. Both direct seed and conventional management are used in the legume trials to provide performance information under different management systems.

These field demonstrations created many alternative views and diagnoses related to variety selection, nutrient management input, and disease evaluation. Learner outcomes result when new information is transferred through schools, field days and tours, and through published communications.

Schools

Survey data from the winter crop schools consistently validate that variety information is useful, current, and valuable to Idaho stakeholders. Attendee evaluations indicated that participants increased their knowledge of cereal related topics; the information was useful in their business. According to evaluation results, between 88 and 95 percent of growers indicated they would use the information they learned to make management decisions during the coming growing season. Between 82 and 88 percent indicated they had used information from previous events in their decision making process, on their farm or in their business.

Communications

Ag publishers and writers use the information from the Cereal Sentinel newsletter for story ideas and more than 100 producers, agribusiness, public agency, and Extension educators use the Southwest Idaho Extension Cereals website to access the Cereal Sentinel newsletter and other educational products. The value of the newsletter has been documented by readers sending in comments and testimonials.

c. Sources of Funding

The Cereals program is supported by approximately $210,193 from Federal Smith-lever 3(b&c) appropriations; $325,337 in State appropriations for Agricultural Research and Extension; $5,175 in County appropriations for University Extension; and by $723,377 in grants from Federal, State, and private sources. Sponsorship from local agribusinesses and state commodity associations helped to fund several workshops.

d. Scope of the Program

The Cereals program is conducted in nearly every county throughout the State. Team members report 0.27 FTEs committed to multistate activities including variety trials in collaboration with Oregon in the Treasure Valley, IPM educational programs for the Northwest, in-service and professional development training in the Western Region, and significant pest management work relevant throughout the region.

Dairy Topic Team

a. Inputs and Outputs

Nine faculty reported 3.1 combined FTEs of effort committed to the Dairy Team, including three dairy specialists, an entomologist, and five county educators. Research and Extension programs delivered by the Dairy Team resulted in numerous publications including four refereed journal articles, 19 papers published as abstracts and proceedings, one Extension Impact Statement, one research report, and eight articles in popular press. Education was also delivered through 14 workshops, 15 series of classes, 21 assorted presentations, six invited presentations, eight field tours and four posters. Approximately 4,606 individuals were contacted as part of face-to-face Extension programs.

Dairy Production and Management:

Treasure Valley Dairy Heifer Replacement Project: The dairy heifer projects provide education on both rearing of the project animal and on issues facing the industry as a whole. The heifer project helps to develop responsibility in youth as they learn to care for and raise their project animal. Integrating industry related issues as a part of the educational process increases the understanding of the dairy industry by the community as a whole.

Spanish Dairy Worker programs: The proportion of dairy workers that speak Spanish as their first language exceeds 90 percent in the major dairy counties. In response to the identified need, a Spanish-language Milker's School was delivered to approximately 75 dairy employees during 2006. The program was delivered on farms to meet clientele needs.

Teaching: Extension faculty contributed to the education of Veterinary Medicine students studying cow comfort on dairy operations at the Caine Veterinary Teaching

Center in classroom and on site education.

Dairy Nutrition:

Ensiling Beet Pulp: Ensiling pressed beet pulp is relatively new practice under consideration by Idaho dairy producers. Based on our research, UI Faculty authored a Current Information Series (CIS) publication on ensiling pressed beet pulp.

Dairy feeder school: This program was designed to educate producers about: 1) developing standard operating procedures for feeding TMR's, 2) on-farm tests for measuring dry matter content, 3) reading the feed bunk, and 4) measures of variability in TMR's. Extension presentation topics at the Eastern Idaho Winter Dairy Forum and Eastern Idaho Forage School included: 1) management practices for reducing soil phosphorus, 2) the value of corn silage in dairy rations, and 3) the importance of relative feed value in selecting alfalfa hay.

Dairy Reproduction:

UI faculty working in the area of dairy reproduction produced ten abstracts and proceedings, three peer-reviewed publications, and nine presentations at statewide, regional, and national meetings.

b. Program Outcomes

Dairy Production and Management:

University of Idaho Extension dairy programs have contributed to the growth and profitability of the industry through 1) educational programs for dairy producers, employees, veterinarians, and allied industry, and 2) one-on-one consultations with dairy producers, employees, and allied industry. To foster good management and to promote increased profitability, University of Idaho Extension Dairy Team members work closely with the Idaho State Dairy Herd Improvement Association (DHIA), the Idaho State Holstein Association, and veterinarians throughout the state.

Treasure Valley Dairy Heifer Replacement Project: As a result of participation, 4-H and FFA youth have an increased knowledge of the dairy industry, care and feeding of dairy heifers, and are better prepared to explain about their heifer and the industry to interested citizens at county fairs and shows.

AI School: Participants received knowledge from classroom presentations as well as hands-on experience with anatomy, palpation and AI techniques at several local dairies. As a result of the training, all the participants were able to pass a semen handling and placement of semen in the uterus test. This will allow dairy employees and beef producers to utilize AI to a greater extent and with more effectiveness in their operation.

Organic Milk Production: Of the 11 dairy operations who participated in sessions to learn about organic milk production, one producer is currently selling milk organically, and two others are inspected for organic milk production and expected

to be selling organic milk in 2007. Organic milk price is very steady at over $22.00/cwt—over double the cash price for regular milk.

Dairy Nutrition:

Ensiling Beet Pulp: Results from research designed to learn the effects of feeding wet pressed beet pulp (WBP) on milk volume, fat, and protein production in dairy cows suggest that the inclusion of WBP in the diet of lactating dairy cows increased the milk yield of cows between 136 and 305 days in milk (DIM), but not cows between 30 to 135 DIM. Further, the inclusion of WBP in the diet increased the fat content in the milk of cows between 30 and 135 DIM, but not in cows between 136 and 305 DIM. Further studies will be necessary to validate the magnitude of the response of cows to WBP in the diet.

Particle Sizing Dairy Rations: A field trial to evaluate a new technique for particle sizing dairy rations involved digital images collected from 200 alfalfa hay stems of varying lengths (2 to 7 inches). Digital imaging does not appear to be a reliable tool for estimating particle length and mixing time of total mixed rations.

c. Funding Sources

The Dairy program is supported by Federal appropriations through $117,521 in Smith-Lever 3(b&c) and $19,539 in animal health 3(d) funds; $181,664 from State appropriations for Agricultural Research and Extension; and $2,896 in county appropriations for University Extension. The Dairy Team garnered $394,816 in grant support for their programs, including $159,000 in Federal, $189,000 in private, and $47,000 in State support.

d. Scope of the Dairy Program

The Dairy program is largely conducted in Southern Idaho, with special emphasis in the dairy regions of the Magic and Treasure Valleys. Faculty report 0.22 FTEs of activity on multistate projects, mostly related to dairy management and education including invited papers presented in Nevada and California and programs delivered in Idaho for multistate audiences. Work creating Spanish-language materials involved collaboration with experts in several western States. The dairy team also was involved with the Northwest pilot study for NAIS.

Forages Topic Team

a. Inputs and Outputs

Twenty UI Extension faculty committed 3.59 FTEs of effort to the forages program. Educational programs were delivered through 23 schools and workshops and 34 presentations, reaching some 2,912 learners in face-to-face experiences. The forages team published one refereed journal article, eight abstracts and proceedings, four extension publications and 22 articles in popular media.

Schools and Training:
Southeastern Idaho Forage Seminar: Offered in collaboration with colleagues from BYU-Idaho, participants were able to complete four credits for State pesticide safety training and three and one half credits as certified crop advisors. The 100 attendees represented a 50 percent increase in participation from 2005. Forage education included work to improve hay quality for Tribal beef and buffalo herds in coordination with the Tribal Agricultural Resource Management Department.

Four forages workshops and a pasture management class were delivered to local producers about management intensive grazing. Multistate workshops were held in Washington and Utah and utilized instructors from Washington, Oregon, Idaho, and Utah. There were 70 participants including producers and agency personnel.

Demonstrations and Studies
A multistate SARE grant for $10,000 was awarded to study the feasibility of using alternative forages to prolong the grazing season.

Evapotranspiration (ET) Trials: Analyses of ET data and irrigation system capacities demonstrate the need to fill the soil profile before peak water use begins. In addition, growers could also benefit by increasing system capacity from 6.5 gpm/ac to 8 gpm/ac. This will allow the system to apply needed water throughout the season, wet a deeper soil profile, and allow better irrigation management immediately before and after harvest.

b. Program Outcomes

Schools and Training
Lost River Grazing Academy Management-intensive Grazing (MiG) Workshop: This program was named the National Award Winner for Livestock Programs at the NACAA AM/PIC meeting for 2006. Alumni (2005) were surveyed to determine implementation of MiG principles. Frequency data indicate that the number of animals being grazed by reporting producers increased by 1,189 head. This equates to an average of 25 additional animals per producer. These producers also indicate that 5,807 additional acres are now under a managed grazing system. The total number of days grazed increased by 32 percent. Respondents also reported 1) a decrease in the number of weeds, 2) fertilizer costs remaining the same or declining, 3) a decrease in animal health costs and 4) a decrease in their winter feeding costs. Finally, respondents reported an increase in their bottom line.

Multistate workshops: Evaluation of 23 presentations and lab or field exercises revealed that 81 percent of learners found the content to be highly valuable. 94 percent rated the organization and quality of the program as high or very high. As a result of successful training, the growers have new knowledge and skills for raising higher yields and better quality alfalfa.

Demonstrations and Studies

Research about nitrates has led to a hypothesis that nitrate levels in Lincoln County are directly related to use of animal manures on fields without proper incorporation. Cooperators in a demonstration trial have begun to plow manures instead of disking manures into the soil. In the next few years, extension educators in the Magic Valley will be working with farmers to better manage manure application and incorporation.

Informing the Public

For years Idaho Power has assisted farmers with irrigation system energy audits and subsequent re-design of irrigation systems to achieve maximum energy savings. UI engineers have demonstrated that, in crops such as alfalfa, sugarbeets, and potatoes, designs that minimize power cost may not maximize profit. Idaho Power personnel are now changing their designs to accommodate these crops, giving farmers more profitable and flexible systems. With improved system design and better near-harvest irrigation management, alfalfa yield could be increased by about 1 t/ac (about a 10-20% increase).

c. Source of funding

Grants totaling $47,250 (including a multistate SARE grant with Utah) were garnered to deliver educational programs. The work was also supported by approximately $140,401 in Smith-Lever 3(b&c) funds; $217,313 in State appropriation for Agricultural Research and Extension; and $3,457 in County appropriations for University Extension.

d. Scope of Forages Program

Faculty reported 0.21 FTEs invested in multistate activities conducted in collaboration with, and to address the needs of experts and producers in other States. Significant multistate activities included the forages workshops in Utah and Washington and the work supported by SARE (with Utah). Other aspects of the forages program are delivered locally and statewide.

Other Idaho Commercial Crops Topic Team

a. Inputs and Outputs

The Other Commercial Crops Team invested 2.47 faculty FTEs to this program. Products included one refereed journal article, two published abstracts, six project/research reports, eight articles in popular media, and eight Extension publications. Nine workshops and classes, 25 presentations, and five posters were presented to reach a total audience of 1,774 learners in face-to-face experiences.

Pest and Disease Management:

A program in southwestern Idaho involves identification and characterization of new and emerging plant diseases/pathogens in home gardens, nurseries, fields and orchards. Development of a web-based sample submission, diagnosis and archival system (Idaho Plant Diagnostic System) funded through Western Plant Diagnostic Network (WPDN) has improved the efficiency and quality of the sample diagnostic

process. Distance delivery of plant disease classes to master gardeners statewide has reached a larger number of learners.

Pest management strategic plans (PMSP) were a high priority for PNW and Idaho commodity organizations, as well as USDA, the Western IPM Center, and the PNW workgroup. UI faculty organized, facilitated and prepared all background materials for three workshops on potatoes, organic potatoes, and western forages and participated in the Western States Pulse Crop PMSP.

Production Practices:

UI Extension started a fruit grower newsletter based on stakeholder input that was sent out to all growers in Gem, Washington, and Payette Counties. Educational programs have been developed and presented to numerous audiences.

Pest Management Tools and Technologies:

Arthropod pests of hops and alfalfa seed: These projects include field and lab trials examining the efficacy of pesticides for managing the major pests of hop and alfalfa seed. Results were presented and discussed at regularly scheduled meetings of local and regional alfalfa seed and hop commissions and grower associations. Results of trials are available to growers and industry clientele through proceedings, abstracts, and peer-reviewed extension publications. Faculty have delivered or coauthored 13 presentations in the reporting year on biology and management of arthropod pests of alfalfa seed or hop to growers and industry personnel. These include presentations to local and regional annual Alfalfa Seed Schools. Attendance exceeded 400 learners.

Research Trials: Nineteen field trials were conducted by the Idaho IR-4 Field Center, in order to collect magnitude of residue data from the 2006 pesticide priorities. The collected residue data will be compiled in early 2007 and used as part of a registration data package submitted to the U.S. EPA. The objective is to gain a new pesticide tolerance and subsequent pesticide registration (usually takes 3-6 years, depending upon EPA workload). The residue data may also be used by the Idaho State Department of Agriculture to issue Section 18 registrations.

Information Networks:

UI Pest Management Center (IPMC): Part of the Western Region Center, this center provides information to producers in Idaho and surrounding states. The IPMC is developing an IPM Scouting Manual in Spanish. Center staff published and distributed six newsletters this year and coordinated pesticide registration information with the Treasure Valley Pest Alert system. The IPMC webpage provides Idaho clientele with current items of interest and easy access to Extension publications.

TV/PNWPestAlert.net: A collaborative effort between faculty from the UI and Oregon State University, the objective is to rapidly communicate (educate) with growers across southern Idaho about pest outbreaks that are occurring, or expected in the

near future. The six newsletters published in 2006 provide useful information for our Idaho clientele.

b. Program Outcomes

Pest and Disease Management:

UI Extension personnel completed three PMSPs to serve industry and stakeholders, and provide stakeholder input for multistate, multi-disciplinary grant applications, research priorities, legislation, and EPA registrations. The organic potato PMSP provides a model for future organic management plans for this region. The Idaho Information Network continues to provide Idaho pest management input to the Western region—giving Idaho's priorities a voice in such a large and diverse agricultural region.

Pest Management Tools and Technologies:

Arthropod pests of hops and alfalfa seed: Compounds evaluated for use in alfalfa seed do not appear to have value as stand alone products for lygus management. There is no evidence that, under current management practices, natural enemies alone can provide economic lygus bug control. As a result of tests conducted by UI, novaluron received section 24c registration in Idaho for management of lygus in alfalfa seed. The compound tested in the field (imidacloprid) was not effective against *P. californicus*. Although no new compounds were registered in 2005, our program has played a role in the registration of several new miticides, aphicides, and herbicides for use in hop. Results of efficacy trials, leafcutting bee studies, predator toxicity studies, and of longer term work on *Peristenus* have been published in proceedings, journal articles, abstracts and peer-reviewed extension publications.

Research Trials: The data generated by the Idaho Field Center and from some regional field trials was used by the Idaho State Department of Agriculture to support the Section 18 requests. Zinc phosphide was issued a Special Local Needs (24c) registration by the Idaho State Department of Agriculture. As a result of regional research priorities, collaboration with grower groups, pesticide industry and IR-4, the Idaho Field Center conducted 19 successful field trials in 2006, to contribute to the Western Region data packages for new pesticide submittal. Nineteen field data notebooks were completed and submitted to the Western Region IR-4 office in 2006.

Information Networks:

UI Pest Management Center (IPMC): Pesticide and pesticide registration information presented at seven pesticide recertification classes resulted in a grower community that is better informed about EPA and registration decisions. This knowledge has engaged several commodity groups in the EPA review process, giving local and regional groups a voice in the national decision making.

TV/PNWPestAlert.net: A survey of TVPestAlert website users, conducted late in 2005, reported the following results: 50.7 percent of users increased their field scouting; 9.86 percent of users were able to eliminate at least one pesticide

application; 28.17 percent of users found their pesticide applications to be more effective; and 11.27 percent of users were able to reduce the amount of pesticide applied to crops. An article was accepted for publication by the Journal of Extension.

c. Source of funding

The Team garnered $367,530 in Federal, State, and private grants to support their activities. Smith-Lever 3(b&c) funded approximately $100,811 for this work; $156,036 came from State appropriations for Agricultural Research and Extension; and $2,482 from County appropriations for University Extension.

d. Scope of the Other Idaho Crops Program

Much of the work done by this team is collaborative with other western states and was reported to equal approximately 0.66 FTEs in multistate activity. The Idaho Pest Management Center is integrated with the Western Region Center and minor crop pesticide registration activities address issues and benefit growers throughout the northwest. The TV/PNW Pest Alert Network is collaborative with Oregon and is being expanded in the northwest.

Potatoes Topic Team

a. Inputs and Outputs

The University of Idaho Extension Potato Team integrates the efforts of 18 Idaho Extension and research faculty, collectively committing 7.11 FTEs to the program. Published outputs of the potato program include ten journal articles, 21 abstracts and proceedings, 11 book chapters, nine research reports, 68 articles in popular media, and 58 Extension publications. Educational events included 31 workshops and 47 various presentations, four poster presentations, and ten field days and tours. These programs reached 5,793 learners through face-to-face experiences.

Cropping Rotation:

Trade Adjustment Assistance (TAA) Program: This program assisted growers negatively impacted by foreign trade issues and trained them how to maximize the efficiency of the entire rotation and to measure this in terms of net returns. Eighty-three growers participated in workshops and one-on-one guidance with over 87,000 acres of documented improvements in rotational practices and accounting methods. Two CIS publications are in press covering the principles of cropping sequence and length of rotation.

Research Projects: At least five rotational cropping system research projects are underway. Among other questions, these studies are designed to evaluate: potato yield and quality, incorporating organically-produced potatoes with forage legumes and edible beans, and drip irrigation to reduce disease incidence and weeds. A multistate project is investigating ways to shorten the time needed to evaluate entire cropping systems by using existing fields and rotations already in use.

Best Management Practices (BMP) for Sustainable Potato Production: This program highlights model growers in the Pacific Northwest as examples of those that are successfully following many of the research based recommendations promoted by the University of Idaho. Outputs include a comprehensive, concise guide for potato production, but the primary objective of this project was to demonstrate research-based management recommendations and, simultaneously, increase profits and farm/environment sustainability. Through dozens of presentations, field days, press releases, popular press articles, and newsletters, many growers in the region became familiar with this model grower program and 76 percent of those surveyed indicated that they had significantly more confidence in research based recommendations as a direct result of the project.

"Famous Potatoes" Field Day: This event has been organized and conducted eight times, in cooperation with many scientists and industry agronomists. Last year nearly 200 attended. The event is recognized by growers and industry people as one of the most important sources of potato field information. Over 30 industry partners assisted in the field day.

Information and Technology Transfer:

UI Extension transfers information and new technology related to potato production via seminars, workshops, newsletters, extension bulletins, popular press, field days and tours, individual consultations, and the Idaho Potato Conference. UI faculty also presented at the annual Potato Association of America meeting in Madison, Wisconsin, and at the World Potato Congress in Idaho. More than 180 written publications were produced; including Current Information Series (Extension bulletins) about topics ranging from cracks in potato tubers and late blight management to fertilization strategies and managing input costs. UI Extension publishes a widely distributed newsletter called *Spudvine*, and publishes articles in *Aardappelowereld*, and international trade journal focusing on economics and marketing in the potato industry.

Potato Economics:

Periodic conferences with officers of the United Potato Growers of Idaho and the United Potato Growers of America cooperatives provide opportunities to discuss ideas and economic principles, and to share new knowledge with industry leaders to help them guide their potato marketing cooperative. Significant effort was invested to develop resource materials and present information about potato farm management. Outputs included seven economic presentations, two extension articles and eight cost and return estimates for potatoes.

Spanish on Farm Workshops:

Two workshops reached 28 Spanish-speaking farm laborers and new lectures included identification of two new potato pests (the potato tuber worm, and the potato cyst nematode), a potato pathology review, and equipment safety (in response to a specific request following the death of a worker). A pesticide safety workshop for 33 Spanish-speaking workers was also delivered.

Potato Culinary Quality:

Culinary testing became a part of the potato variety release process in 1988. Since the establishment of the taste panel, five varieties have been released by the University of Idaho Research and Extension Center at Aberdeen. These include the Frontier Russet, Ranger Russet, Bannock Russet, Umatilla Russet and Russet Legend. One more variety, Gem Russet, is in the process of being released. Ranger Russet is now the third ranked variety in the northwest and seventh in the nation.

Pest Management in Potatoes:

Research:

Several research and demonstration projects address PLRV and PVY (potato mosaic virus). Research was conducted to compare the efficacy and economical feasibility of broad-spectrum and narrow spectrum insecticides for control of wireworms in potatoes. Seed piece decay, Rhizoctonia canker, seed borne mosaic, and leafroll virus continue to be important problems for Idaho potato producers. Investigations include validation of established chemistries as well as other experimental fungicides and insecticides.

Weed Pests: Weed pests such as cutleaf nightshade and hairy nightshade are subjects of biology and control trials and dose response trials, involving traditional and new herbicides and tank mixes. Research on chemicals includes degradation and carryover studies involving sulfentrazone and flucarbazone. Green manures are under investigation for weed suppression in potatoes, in response to clients on the Shoshone-Bannock Reservation.

Strategic Planning: Two important Extension activities include coordination of the PNW revised potato pest management strategic planning workshop and the PNW organic potato pest management strategic planning workshop. An output of both workshops was a peer reviewed document. Final documents are expected to be published on the USDA-CSREES website in the second and fourth quarters of 2007, respectively. These activities will have an impact on traditional and organic potato production practices for years to come.

Alternative Technologies:

Research and extension activities at the Kimberly Potato Storage Research Facility have focused on alternative methods to chlorpropham (CIPC) to control sprout development in storage. Research over the past several years evaluated the use of clove oil as a sprout control agent. It is registered as an organic product and has merit in the potato industry as a sprout suppressant. Extension efforts relayed information to the potato industry on the use of clove oil in non-CIPC allowed situations. Extension and scientific presentations were made, and trade journal articles, proceedings, and abstracts were written.

b. Program Outcomes

Cropping Systems:

Best Management Practices (BMP) for Sustainable Potato Production: Over 100,000 acres (53 growers) in the region have provided documentation that they have adopted one or more BMPs, and changes in cropping sequence and rotation have been documented on 87,000 acres of potato ground. In addition, two major publications have evolved. Data gathered from replicated trials on each model grower's farm showed that the BMPs, on average, had nearly equal yield and crop quality. More importantly, the net returns averaged 3 percent greater on fields where BMPs were adopted; the significant increase was due to reduced inputs and the nearly equivalent yields and crop quality. This project illustrated to growers the concept of maximum economic yield and was a powerful force in motivating many growers to alter their management strategies.

Information and Technology Transfer:

University of Idaho Potato Conference: Average responses among more than 300 growers and industry professionals in attendance indicated that 40 percent of respondents had attended a previous workshop and all had adopted some or most of the information presented; 60 percent indicated that the information presented in the current workshop was very useful; 60 percent indicated they would adopt some practices presented.

Potato Economics:

More than 800 participants attended the World Potato Congress. An on-line survey showed that marketing programs were the most beneficial to the participants.

Spanish on Farm Workshops:

The students demonstrated an increase in knowledge with an average pre-test score of 9.6 compared with average post-test scores of 77.9. This year's post-test scores were the highest they have ever been, reflecting improved success in bridging the language/culture barrier.

Potato Culinary Quality:

Five advanced breeding selections were compared to Russet Burbank in blind sensory evaluations of baked tubers, both for fresh tubers and after 5-months of storage. Results from these tests show one of the selections to be superior and two to be inferior to Russet Burbank at harvest, but no measurable differences among the varieties after storage. This data will be incorporated into strategies to release, to continue breeding, or to withdraw the various selections.

Pest Management in Potatoes:

Potato Mosaic Virus: Data about potato mosaic virus (PVY and PVA) has been incorporated into BMP recommendations, and used by growers to evaluate their seed potato supplies. Other research suggests that hairy nightshade could influence the epidemiology of potato viruses in the crop, with implications for disease

management. Results were published in the *Journal of Economic Entomology* and in *Environmental Entomology*. A management plan for hairy nightshade also was published. Based on these findings, a monitoring program was implemented by Idaho State Department of Agriculture.

Control of Wireworms: Results from these studies have shown which treatments provided reduction in the number of damage sites per tuber. Results were published in *Pesticide Outlook and Potato Grower* magazine. Wireworm phenology research indicates that all the wireworm insecticides may be applied prematurely (at planting) because the wireworm damage is occurring mostly at the end of the season when the effectiveness of these insecticides has been reduced. Re-evaluating the timing of insecticide applications may save Idaho potato growers hundreds of thousands of dollars in treatment costs and crop losses. BASF is going to register a new insecticide for wireworm control in potatoes supported by our findings.

Potato Growers of Idaho continued to encourage their growers to complete and score themselves on IPM production using the 2006 (UI-developed) checklist. As a result of these efforts, there has been an increase in grower adoption of the use of green manures for pest management, and the use of less risky pesticides.

The Idaho State Department of Agriculture (ISDA) and the Potato Commission were informed about the presence of tuberworm in Idaho based on UI Extension findings. After developing a more extensive set of traps throughout southern Idaho, a bulletin was released to warn potato growers in the state about potato tuber moth and the means available for its control (CIS 1125).

Alternative Technologies:

A potato chip manufacturer in Japan contacted Idaho regarding export of chipping potatoes to Japan but no CIPC could be utilized for sprout control. We worked with the Idaho chip producer on the utilization of clove oil for sprout control of the chipping potatoes. They were successfully shipped to Japan. No raw potatoes have ever been exported to Japan from the United States prior to this shipment. The Japanese potato industry is now interested in the use of clove oil for their market. Research and extension efforts using clove oil for sprout control have changed the ability of our industry to export to Japan and to explore other markets.

c. Source of funding

The program was supported by $564,547 in grants from Federal, State, and private sources. Smith-Lever 3(b&c) funded approximately $289,781 for this work; $448,523 came from State appropriations for Agricultural Research and Extension; and $7,135 from County appropriations for University Extension.

d. Scope of the Potato Program

Idaho is a world leader in potato science and production. University of Idaho Faculty visited countries in Europe and Africa to share their expertise during 2006. Potato Team members reported 0.92 FTEs of activity committed to collaborations with

colleagues from Maine, Michigan, Oregon and Washington, to discover new knowledge and to design educational responses. One significant multistate project is the development of the PNW potato pest management strategic plan.

Sheep, Swine, Aquaculture and Other Livestock Topic Team

a. Inputs and Outputs

Sheep, swine, aquaculture and other livestock programs are reported by nine UI Extension faculty members for a cumulative investment of 1.33 FTEs. The team brought in $81,557 in grants and significant volunteer effort and in-kind contributions to support education in this topic. Faculty members reported delivery of five workshops and classes, 29 educational presentations, 15 poster presentations, and five field days and camps; reaching 905 learners in face-to-face experiences. The team was responsible for the production of two refereed publications, one abstract, and 14 popular press and trade publication articles.

Aquaculture

Seafood at its Best: This curriculum was developed in 2006 to examine the benefits and risks of eating fish and to inform consumers how to buy, store and cook it. Other educational resources included poster presentations at fairs, festivals and tours promoting healthy seafood diets; presentations about perceived health risks associated with seafood (mercury, PCBs, etc.); and publications in popular media about seafood diets.

Research supported by the Western Region Aquaculture Center is investigating practices to control solid waste and reduce phosphorus discharge from aquaculture facilities. Another project is evaluating and communicating practices to reduce losses during live-haul of marketed fish.

A multistate collaboration with Washington involves a caviar quality and testing research project, now in its second and final year. The primary purpose is to characterize microbial food safety and product quality, focusing on environmental/microbial contamination throughout the caviar production process. Work continues on microbial treatment of caviar.

Sheep, Swine, and Other Livestock

All across Idaho, faculty help educate young people and producers by serving to evaluate livestock and teach about livestock judging. In central Idaho, Extension serves the sheep industry in three counties by managing the contracting process for the wool pool. This year the market was so weak that the pool was not sold even though bids were solicited and received.

Livestock Day Camp focused on quality assurance this year. A volunteer leader and teens involved in the Salmon Swine 4-H club prepared and presented workshops for other young learners covering topics such injection sites, animal movement, feed

residues, and responsibilities of the packer. The goal of the animal movement workshop was to help youth understand the importance of records and the goals of the national animal identification system if there was to be a disease outbreak. A gaming format was used to teach these lessons. Youth who were able to track and maintain records successfully continued in the game, while those who lost their records were eliminated.

b. Program Outcomes

Aquaculture

Research supporting the aquaculture outreach program included a multistate study (with North Carolina State University) to assess mercury levels of U.S. farm-raised trout. The study involved the Environmental Quality Institute and UNC-Asheville, and was funded by the US Trout Farmers Association. The study determined that US farm-raised trout have among the lowest levels of mercury reported in seafood. In addition to publicizing the results in presentations and popular press articles, Idaho fish processors use a research memo developed as part of the project to inform their consumers of the quality of their food products. New knowledge created through this project has been shared with academic and industry stakeholders, through academic journals and trade publications.

Collaborative research through the Western Regional Aquaculture Center has led to new knowledge that will be used to design best practices and educational programs that control solid wastes and reduce phosphorus discharge by the aquaculture industry. Adoption of research-based information by producers will increase their production efficiency and improve water quality, while maintaining economic competitiveness.

Preliminary results of the caviar quality project detected microbial contamination of the external surface of the female sturgeons, and also indicate that temperature is more important than salt levels in preventing microbial growth. The sturgeon growers and caviar processor are implementing sanitary procedures and temperature control during caviar production. This work has enabled the development of a new industry; growers and processors are producing caviar on a regular basis.

Sheep, Swine, and Other Livestock

Youth attending the natural resources camp demonstrated an increase in knowledge based on results from the pre- and post- test given. Youth learned what a dichotomous key is, what it is used for, and how to develop their own dichotomous key and use it to key out local fish species. They also demonstrated knowledge about characteristics of local fish species and basic external and internal fish anatomy.

c. Source of funding

Funding for this program totals $139,638, including approximately $53,783 Smith-Lever (b&c) appropriation, $84,019 State appropriations for Agricultural Research

and Extension, and $1,836 County appropriations for University Extension. The faculty garnered $81,558 in grants to support this work.

d. Scope of the Program

The UI program on sheep, swine, aquaculture, and other livestock is conducted throughout the State, with regional variation in the animals involved and education needed. Faculty reported 0.34 FTEs of multistate activity, including collaboration with North Carolina State to assess mercury levels in farm-raised trout; the caviar quality project with Washington State; interaction with neighboring states about West Nile virus; and consultation with EPA to establish aquaculture permitting rules that will have national impact.

Small Farms and Emerging Specialty Crops Topic Team

a. Inputs and Outputs

The Small Farms and Emerging Specialty Crops team includes 14 UI Extension faculty members who dedicated a total 2.92 FTEs. Their educational programs included delivery of 48 workshops and classes, 44 educational presentations, one poster presentation and ten tours and field days; and reached a combined audience of 1,451 learners in face-to-face experiences. The Small Farms team created a variety of published materials, including three abstracts and proceedings, three research reports, five articles in popular press, and five Extension publications.

Education for Small Acreage Owners

Living on the Land: This course was designed to address small acreage land units and urban sprawl. The program targets small acreage landowners, green industry businesses and community leaders interested in gaining skills in land stewardship. Responding to growing demand for the *Living on the Land*, UI received a SARE Research and Education grant to expand the class and train 24 new instructors for multistate delivery.

Stewardship for Small Acreages, a similar course, offered 9-weeks of programming in sustainable farm practices and served 22 learners.

A multistate collaboration with University of Montana led to a workshop entitled *Wildlife and Resource Management of Small Acreages* for private landowners in Teton Valley. The course included topics such as wildlife management, irrigation, tree and shrub selection, and weed control. Several faculty reported noxious weed identification as the subject of small acreage programs, including one partnership with Master Gardner programs in which the volunteers help teach residents about plants toxic to livestock and pets.

Education for Specialty Crop Producers

Cultivating Success is a sustainable small farm and ranching workshop combining classroom and on-farm learning experiences. The program is a collaborative effort

by Rural Roots (a regional non-profit group), the Risk Management Agency, University of Idaho, and Washington State University. During the 10 week course, participants learn from experts in agriculture and business; participate in tours of successful farm operations; and receive mentoring from experienced farmers who want to share their knowledge. More than 1,000 people have participated in one or more of the Cultivating Success courses in WA and Idaho in the past six years. Two trainings for interested and potential instructors of the Cultivating Success program were held to expand the capacity of the program to reach more learners.

In Northern Idaho, growers attended two workshops on commercial berry and grape production as part of a small acreage course. UI Faculty also revised the obsolete PNW handbook on commercial raspberry production. The Northwest Berry and Grape Information Network website generates approximately 3.4 million hits annually.

Small farm and organic conferences were attended by 144 growers where they learned about small-scale tree production, organic barley, West Nile Virus, local food systems, farmers' market management and marketing techniques. Idaho faculty also collaborated with Utah State University to plan and deliver the 3rd Annual Diversified Agriculture Conference in Cedar City, Utah, attended by 210 participants; half of whom were producers and half were government and industry professionals.

Formal course offerings reached 45 students who completed Small Acreage farming and/or Ag entrepreneurship course in Moscow, Boise, Twin Falls, and Pocatello and another 11 students through an on-line hybrid course. Students participated in four farm tours and engaged in interactive class activities and discussions.

One-on-one consultation is a major piece of Extension's effort directed toward specialty crop entrepreneurs. In 2006, more than one-hundred growers received individual assistance related to the production of specialty crops, ranging from cane fruits and nursery stock to new business ventures.

b. Program Outcomes

Education for Small Acreage Owners

Weed education and awareness was enhanced significantly thanks to an innovative program in which Extension secured funds and advertised a "bounty" for residents to dig up invasive common mullein weeds and deliver them to the Teton County Extension Office. More than 10,000 plants were gathered in less than a week. The program received a lot of publicity and has improved awareness of noxious weeds and of the Extension Office in Teton County.

Students given a retrospective pre-post test following the *Stewardship for Small Acreages* course reported an increase in knowledge level in all subjects assessed. Score difference ranged from +1.00 (Goal Setting, Living with Animals) to +1.77 (Soils, Water Quality) on a 5.0 scale.

Thirteen families completed *Living on the Land*. In a questionnaire collected after the 4-month long curriculum, participants scored the program as 4.67 (on a scale of 5.0) for usefulness and as 4.58 for knowledge gained. Several testimonial comments added value to the importance of the program.

Education for Specialty Crop Producers

Learners participating in the grape and berry production courses rated the programs very high (average 5.0 on a 5-point scale). All 80 of the learners in attendance at the Small Farm-Direct Marketing Conference reported increased awareness of strategies for success at Farmers' markets.

Forty-five learners completed a business plan as a requirement for completion of the Small Acreage Farming and Ranching and Ag Entrepreneurship classes. These participants demonstrated what they learned about protecting their soil and water quality, and about recommended resource conservation and monitoring practices. Evidence of learning includes a Boise farmer who attended Living on the Land course and then was motivated to facilitate and co-teach the Boise Sustainable Small Farm and Ranch course; a producer from Troy who took both Small Acreage Farming and Ag Entrepreneurship then co-taught the Ag Entrepreneurship course in Moscow; and the Blackfoot farm business owner took the on-line class in Fall 2005 and helped to organize and fund three scholarships for students to participate in the spring 2006 course in Pocatello.

An evaluation to determine the effectiveness of the Diversified Agriculture Conference in Utah (collaborative with UI Extension) revealed that 94 percent of participants felt the conference addressed important issues; 83 percent planned on making changes in their operations; 94 percent felt they are now aware of more places to find help with their small farm issues; and 98 percent indicated they would like to attend the conference again.

c. Source of Funding

Smith-Lever 3(b&c) funded approximately $115,096 of the cost for this work; $178,146 came from State appropriations for Agricultural Research and Extension; and $2,834 from County appropriations for University Extension. Faculty reported $639,234 in grants (Federal, State, and private) to these programs.

d. Project Scope

The UI Small Farm and Emerging Specialty Crop program is conducted throughout Idaho and caters to regional needs. Many of the extension programs have multistate partnerships with other states, such as the *Cultivating Success* program with Washington, the PNW Berry Handbook (OR, WA), and the small farms conference with Utah. Faculty reported 0.34 FTEs devoted to multistate projects in 2006.

Sugarbeet Topic Team

a. Inputs an Outputs

The Sugarbeet program is comprised of eight faculty with a combined investment of 1.71 FTEs dedicated to the program. Team members conducted five workshops and three field days, and made 20 other educational presentations to reach a total face-to-face audience of 2,115. Published outputs include two journal articles, 13 abstracts and proceedings, nine research reports, one book chapter, ten Extension publications, and four articles in popular and trade media.

In-field sprayer calibration survey: Results of the tests conducted in 2005 reported that sprayer calibration inaccuracies were significant enough to warrant follow-up presentations delivered at each sugarbeet grower meeting across southern Idaho. Sprayer calibration testing results, recommended calibration procedures, and a sprayer calibration handout were distributed at all grower meetings. Another follow-up study is underway to learn whether calibration training has led to improved calibration practices.

Weed Control Trials: UI Extension conducted 12 sugarbeet weed control trials in 2006. County faculty and specialists conducted field trials and evaluations of: nitrogen mineralization and fertilizer use efficiency; the effect of various pesticide controls for sugarbeet root maggot; and fungicides for powdery mildew control. These research trials provide information about insecticide efficacy and resulted in publications, posters, presentations; assistance was provided to growers as needed. Extension participated on a working group to design a regional sugarbeet handbook.

Snake River Sugarbeet Conference: Exhibitor fees and donations were secured for conference support, allowing the program to be conducted without registration fees for attendees. There were 14 presentations and 20 speakers discussing topics from disease management to regulatory issues. A Spanish workshop on irrigation was conducted.

Research:

Diagnostic work continued to solve sugarbeet disease problems and to determine whether the resistance-breaking strain of beet necrotic yellow vein virus (BNYVV), the pathogen causing rhizomania, continues to spread. A total of 39 samples were diagnosed and recommendations given. Ten bioassays for BNYVV were conducted on soil from suspected fields using four differential indicator plants, and the new strain was found in nearly all samples.

Cooperation was maintained with the USDA sugarbeet research program, resulting in the development of the data for seed treatment with Poncho for curly top control. These data supported the granting of a Section 18 Emergency exemption for Poncho, and seed for approximately 60,000 acres of sugarbeets were treated, providing excellent curly top control.

The first year of a field study evaluating the impact of varying stand count on beet tonnage and sugar content on marginal-quality soils was conducted in 2006. Plots were harvested in mid-September and crop yield and sugar content were measured.

b. Program Outcomes

In-field sprayer calibration survey: Results of the 2006 survey of sugarbeet growers indicated a modest 5 percent improvement in calibration accuracy at the 90 percent confidence level. Further educational efforts may be needed to increase the calibration accuracy of sprayers used for weed control in sugarbeets.

Snake River Sugarbeet Conference: The attendance was 245 growers, which represented about 20 percent of region's sugarbeet growers. Of those attendees completing the post-program survey, 100 percent indicated that they gained useful knowledge by attending the conference.

Research: Extension faculty, crop advisors, and growers have used information derived from field trials and other sources to develop improved management practices for sugar beets.

c. Source of Funding

Smith-Lever 3(b&c) funded approximately $69,792 for this work; $108,025 came from State appropriations for Agricultural Research and Extension; and $1,718 from County appropriations for University Extension. Faculty garnered $100,450 in grants from State and private sources.

d. Project Scope

The greatest part of the work accomplished by the sugarbeet team is focused on Idaho issues and growers. While faculty participate in conferences and activities in other states, only 0.03 FTEs of the effort was reported as part of a multistate project to develop a regional sugarbeet handbook.

GOAL 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM.

Overview

a. Outputs:

The Food Safety Topic Team consists of 20 UI faculty who reported a combined 4.43 FTEs of effort to this program. The team collectively held 6 workshops and presented 170 lessons and one poster. Educational activities reached 11,142 learners in 2006. Published products included four journal articles, one abstract, two extension publications, and 34 articles and interviews in popular press. In-service trainings were delivered statewide. Food safety articles were developed for popular press. A website was developed to support food thermometer education.

b. Outcomes:

More than 3,125 adults and children who participated in hand-washing programs reported that they would increase their efforts at hand washing; As a result of one-time surveys of ENP clients, planned behavior changes include: 34 percent no longer thaw meat at room temperature; 19 percent put leftover food in the refrigerator; 36 percent thoroughly cook meat, poultry and fish and only 10 percent did not make any changes; and 95 percent said they learned something new from the class. Thousands of Idahoans have received just-in-time information to help protect the health of themselves and their families.

c. Impacts:

Ready, Set, Food Safe was taught by 56 Extension Educators or Extension-trained high school teachers in 97 Idaho classrooms, to 1,588 students. More than ¾ (1,199 students) received an ID Department of Health and Welfare Food Protection Program-approved food safety and sanitation certificate. These graduates, nearly all of whom will be employed in the food service industry as their first jobs, are better prepared and qualified to help protect public health.

d. Accomplishments:

Extension accomplishments in Goal 2 projects are evaluated by comparing planned outputs to actual outputs reported as performance measures. Planned outputs for Goal 2 and accomplishments are as follows:

	Number Planned	Number achieved
Face-to-face teaching contacts	24,382	11,142
Workshop lessons taught	114	170
FSAs recertified	35	42
Food handlers certified (Youth)	315	1,199

With the exception of total number of teaching contacts, all targets were exceeded. Because this is the first year for this organization to compare targets with actual outputs, there is insufficient data to determine success. Improved forecasts of outputs are expected to evolve with experience.

e. Support:

Approximately $304,613 (including 16 percent of Idaho's EFNEP funding and Food Stamp Education funding) in grants and targeted support is used for food safety and security education. Goal 2 programs are also supported by approximately $111,878 in Smith-Lever; $193,690 in State appropriations for Agricultural Research and Extension; and $4,541 in county appropriations for University Extension.

Food Safety Topic Team

a. Inputs and Outputs

Food Security:

In December 2005 the first ICAN food distribution was held. One-hundred-sixty-five low income families, approximately 50 percent Hispanic, received food boxes. The program was conducted monthly thereafter. Extension flyers were distributed in each box, on topics including turkey safety, nutrition, recipes and budget information, and health tips.

The Society of St. Vincent de Paul distributes food boxes for a free Thanksgiving dinner to low-income families. Extension assisted the organization to apply for and receive a $500 grant from the Boise Sunrise Rotary Club to rent a refrigerated trailer to keep perishable foods at the correct temperature. In each of the 1600 food boxes volunteers added an EFNEP flier that contained food safety information related to poultry. The information described how to properly thaw a turkey, cook it to a safe temperature, prepare and refrigerate the leftovers, and use the leftovers in other meals.

Master Food Preserver:

Now called *Food Safety Advisor*, this program trained volunteers to expand Extension's ability to reach many more citizens with unbiased information. In addition, volunteer programs have been found to contribute to the development of high self-esteem in participants. In 2006 training in food safety, preparation, and preservation lessons were offered. New volunteers donate a recommended 30 hours every two years, to address food safety concerns in their communities. The new volunteer training served 12 participants and the advanced training served 42 incumbent volunteers.

Consumer Food Safety:

The researched-based *UI/WSU Food Safety Advisor Volunteer Handbook* was adapted into a web-based course entitled *Preserve @ Home*. The course includes thirteen lessons of on-line and downloadable text, discussion board, real-time weekly chat, visuals, handouts, quizzes, FAQ's, and links to government websites on food safety and food preservation. An article about the project was published in a peer-reviewed journal. A total of 19 students completed the course in 2006. Seven students were Extension Educators from North Carolina who were seeking additional knowledge in food preservation and food safety.

More than 100 educational programs were delivered to consumers. Among those were several projects targeting non-traditional FCS audiences, including a course about home canning for Master Gardeners; a food safety workshop for seniors; and a lunch box safety workshop presented to Idaho Department of Transportation

Construction employees.

Just in Time Food Safety:

Food Safety and food preservation questions were tracked and aggregated for the months of December, February and August by one county's FCS Educator and MFP Coordinator. An estimated 292 food safety and food preservation questions were answered for consumers. The majority of callers indicated they would use the requested advice.

ENP and EFNEP Food Safety:

Approximately 15 percent of the lessons for ENP and EFNEP clients are about Food Safety topics. Extension provides new trainer instruction and continuing education for incumbent trainers. Training in 2006 included *Parenting and Food: Positive Steps for Positive Outcomes*, *Effective Teaching Techniques for Children*, and *Food Allergies and the New Allergy Labeling Rules.*

EFNEP II graduated 274 clients (50 more than in the previous year), all receiving a food safety lesson. An additional 57 enrolled clients learned about hand washing, cross contamination, keeping hot foods hot and cold foods cold, and keeping pests out of the kitchen.

Hand Washing Education:

Germ City: Idaho Extension employs a fun, hands-on program to teach hand-washing techniques using black light and a light-sensitive lotion. *Germ City* was taught to 1,048 grade-school children, exhibited at four county fairs reaching more than 500 adults and children, and was presented to 195 adults and children during two community health fairs. *Germ City: Clean Hands, Healthy People* won the 2006 Western Cooperative Extension Directors' Award of Excellence for Multistate programs.

Wild Cooking:

University of Idaho Extension Educators armed Idaho's hunting families with practical, field-to-table food safety education. Five speakers taught participants how to clean and cool big and small game and upland birds, to take measures in the field and during transport to minimize spoilage and maximize flavor and food safety, to safely prepare and dehydrate meat for jerky, and to prepare Idaho elk, trout and other game meat.

Food Service Food Safety Training:

Safe handling of food in restaurants and institutional feeding facilities is essential for protecting public health. A special training need exists among high school students. High school students comprise a major portion of the workforce in the fast food industry; over 70 percent of high school students work in food service as their first job. A number of Idaho high schools have in-school cafes, snack bars and bakeries run by students.

Ready, Set, Food Safe was taught by 56 Extension Educators or Extension-trained high school teachers in 97 Idaho classrooms, to 1,588 students. More than ¾ (1,199 students) received an ID Department of Health and Welfare Food Protection Program-approved food safety and sanitation certificate.

Food Industry Assistance:

The University of Idaho has two programs assisting Idaho's food industry. UI's Food Technology Center provides food entrepreneur assistance as a primary function. The UI TechHelp program assists larger, existing food manufacturing companies.

b. Program Outcomes

Consumer Food Safety:

Preserve@Home was offered to 74 students from 18 to 81 years of age residing in Idaho, Indiana, Montana, New Mexico, North Carolina, and Texas. In addition, three groups also completed a 6-hour hands-on laboratory experience. Course content and format were evaluated using a retrospective pre-test for all sessions. Of the 52 students completing the course evaluation, 16 percent had no prior experience with food preservation while 21 percent had 1-5 years, 10 percent had 6-10 years and 52 percent had 11+ years of experience. Students with little or no experience reported significant knowledge gained but reported less confidence than their more experienced peers. Students with little to no experience who were able to participate in a hands-on experience reported both significant knowledge and confidence gained. Students are much more aware of food safety and its relationship to high quality home-preserved products as a result of *Preserve@Home*. Students reported several planned behavior changes. Most students indicated they would try new food preservation techniques such as drying or pressure canning.

Food thermometer use project. A follow-up phone survey was conducted to assess outcomes from a five-year project to increase the use of food thermometers during food preparation. The percentage of respondents who (most of the time or always) use a thermometer when cooking small meat items increased from 4 percent in 2003 to 15 percent in 2006. Three manuscripts describing results from the *Reducing Risk with Food Thermometers: Strategies for Behavior Change* project were published in peer reviewed journals.

Wild Cooking:

Over 50 community members participated in Wild Cooking workshops. More than 97 percent of the respondents said that they increased their knowledge of the care of game animals in the field and how to prepare jerky safely; 100 percent gained knowledge on where to purchase Idaho game meat and trout. Most individuals (85%) said that they would try the new "safe" jerky recipes.

ENP and EFNEP Food Safety:

As a result of one-time surveys of ENP clients, planned behavior changes include: 34 percent no longer thaw meat at room temperature; 19 percent put leftover food in

the refrigerator; 36 percent thoroughly cook meat, poultry and fish and only 10 percent did not make any changes; and 95 percent said they learned something new from the class.

Food Service Food Safety Training:

An assessment of the *Ready, Set Food Safe* curriculum shows that variations in the curriculum and program delivery can influence learning. These results have been submitted for publication. A new project, *Impact Evaluation of Teaching a Curriculum for Food Service Food Safety to High School Students* (2006-2010), was proposed and funded. This project will allow us to document the effect of teaching food service food safety information to high school students on their job performance regarding food safety behaviors. The experimental units for evaluation include 23 high school FCS teachers who were trained in 2006 and 1,199 students who received an ID Department of Health and Welfare Food Protection Program-approved food safety and sanitation certificate opening doors to work in food service jobs.

Hand Washing Education:

In most cases, all participants indicated that they will adopt one or more behavioral changes regarding hand washing. More than 3,125 adults and children responded that they would increase their efforts at hand washing; 90 percent plan to wash their hands after coughing and sneezing; 82 percent plan to wash their hands after playing or working outside; 85 percent plan to wash their hands before preparing or eating food; 90 percent plan to wash their hands after using the restroom; and 82 percent plan to wash their hands after playing with pets.

Just in Time Food Safety:

Hundreds of pressure canner lids and pressure gauges were tested by Extension. In all cases, clients seeking testing are preparing to use their equipment, and the testing services help prevent improper food storage and unsafe situations.

c. Source of Funding

The food safety program is partially supported by $126,197 in grants and $133,342 from the Food Stamp Education project. Funds include $111,878 from Smith-Lever 3(b&c) and $45,074 from EFNEP funds; $193,696 in State appropriations for Agricultural Research and Extension, and $4,541 in County appropriations for University Extension.

d. Project Scope

The Food Safety program includes multistate collaboration with Washington State University for the *Preserve@Home* project, collaboration on the consumer food safety program, and on the hand-washing project. The combined efforts were reported as 0.11 FTEs of multistate activity.

GOAL 3: A HEALTHY, WELL-NOURISHED POPULATION

Overview

a. Outputs:

Thirty University of Idaho faculty and staff reported 20.30 FTEs of effort towards the goal of a healthy and well-nourished population. Health and nutrition faculty taught nearly 300 classes and 11 workshops in 2006. They made 105 other educational presentations and presented six posters. ENP advisors taught another 754 lessons. Together these efforts reached 37,529 learners in face-to-face experiences. Health and nutrition faculty produced four journal articles, 19 abstracts and proceedings, 16 Extension publications, and at least 45 news articles in trade publications and in popular press for the general public.

b. Outcomes:

UI Extension programming in Health and Nutrition offers many documented benefits to Idaho residents. These benefits range from improved knowledge about the impacts of nutrition on various health conditions to improvement in eating and physical activity habits. Diabetes programs demonstrated significant knowledge gain related to diet and healthcare with 40 percent more people reporting blood glucose levels within limits at the end of the program. EFNEP addressed hunger in one community by coordinating 184 volunteers who contributed more than 1,100 hours of service to provide meals to 4,195 people, an average of 62 adults and children for each meal. Evaluations of EFNEP program graduates showed that 95 percent improved one or more food resource management skills and 97 percent improved one or more nutrition practices. Overall, more Idahoans are eating healthier diets by increasing intake of fruits and vegetables; reading food labels and buying foods based on nutritional content; and planning and serving more nutritious meals to their families.

c. Impacts:

Although we do not collect long-term data about health conditions and expenditures on health care, there is ample evidence that the behaviors adopted by adult, youth and senior program participants have positive long-term impacts. Among these impacts is improved health, reduced risk of disease, and reduced cost for health care. Over 515 Idaho children were taught about the importance of calcium and physical activity in relation to bone health and research shows that a significant number of those children will reduce their risk of developing osteoporosis and greater than 50 percent will adopt one or more recommended behaviors.

To measure impact of the *Fit and Fall Proof* classes, each participant was given a Three-Meter Timed Up and Go Test at the beginning and end of each six-week exercise program. The length of time it takes participants to complete this test has been found to be indicative of a participant's balance, gait speed, functional capacity for household and community mobility, and risk of falling. Scoring is used to classify

participants from freely mobile with a low fall risk to mostly dependent with very high risk of falling. Participants average post-test scores (5.73 seconds) were significantly lower than their average pre-test scores (7.96 seconds) ($p<0.01$), indicating improved mobility and reduced risk of falling after participating in the program.

d. Accomplishments:

Extension accomplishments in Goal 3 projects are evaluated by comparing planned outputs to actual outputs reported as performance measures. Planned outputs for Goal 3 were exceeded in all cases.

	Number Planned	Number achieved
Face-to-face teaching contacts	9,425	37,529
Classes and presentations	990	1,159
Extension-type publications	n/a	16
Journal articles, proceedings and abstracts	1	23
EFNEP families served	379	425

Because this is the first year for this organization to compare targets with actual outputs, there is insufficient data to determine success. As the Topic Team gains experience, it is expected that accuracy of forecasts will improve.

e. Support:

Support for Goal 3 is the same as for the Human Health and Nutrition Topic area programs, and includes $224,060 from Smith-Lever EFNEP (85% of the total EFNEP distribution to Idaho) and $607,446 from the FNS-USDA grant for ENP (85% of the total FNS grant to Idaho). $617,417 in State appropriations for Agricultural Research and Extension are expended for this program, including the match required for the FNS grant. County appropriations for University of Idaho Extension include $14,278 for Health and Nutrition programs, and another $18,500 in grants from State and private sources supports these programs.

Health and Human Nutrition Topic Team:

a. Inputs and Outputs

Fitness Projects:

Strong Women: This program was initiated through a 5-week series of strength-training classes using the *Strong Women* curriculum developed by Tufts University.

Faculty members created instructor materials, trained and certified instructors, organized classes, marketed the program, garnered grants for equipment, and in some cases, taught the classes. Fifty-seven women completed the *Strong Women* Project. Each class consists of an exercise sequence and nutrition education, supported by printed materials. Data was collected from each class at three intervals (pre, post, follow-up), including an exercise log, a nutrition log, and a lifestyle questionnaire and physical assessment (BMI from height and weight and Resting Heart Rate).

Steps to a New You (SYNY): This 9-lesson program (in partnership with Montana and Wyoming) takes a health centered approach and focuses on body image, physical activity, and healthy eating. There are two components to this project: a state and a multistate component. The STNY state project is monitoring effectiveness of this 9-lesson program. Behaviors related to body image, physical activity, and eating habits were measured using a pre- (week1), post- (week 9), and follow-up (week 22) survey. Body Mass Index (BMI) and Resting Heart Rate were also recorded at these three intervals. In addition, participants received a pedometer and were asked to complete a weekly step log for 22 weeks. The STNY multistate project has been collecting and analyzing data from the three states (Idaho, Wyoming, and Montana) that initially used this program in 2005 and continued into 2006.

Diabetes:

Healthy Diabetes Plate: The five-week session of was taught in seven communities to 85 participants in Southern Idaho. The Diabetes Pedometer program was incorporated into two of the series. Sponsorship from Aging & Adult Services enabled the 12-hour *Healthy Eating with Diabetes* workshop to be taught in six Panhandle communities in partnership with several senior centers and was completed by 126 learners. Several educational programs about diabetes were also presented at various venues to various groups.

Dietary Guidelines:

MyPyramid: UI Extension teaches adults and children nutrition and physical activity concepts covered in the 2005 Dietary Guidelines for Americans and *MyPyramid*. Data are collected on the number of adults and youth that attend these classes. Three new presentations on nutrition and physical activity were developed and presented to UI faculty and staff (ENP and EFNEP Nutrition Advisors). The Society for Nutrition Education reviewed the dietary guidelines which are now available in their online catalog. Educators taught Nutrition/MyPyramid education through 26 presentations and at two health fairs. Approximately 644 people attended the presentations and 750 received information at the health fairs.

Be Your Best with Breakfast: In Eastern Idaho, 79 sessions were taught at local elementary schools. Kindergarten, first-, and second-grade students learned about the importance of breakfast through discussion, activities, and story-telling. Third-, fourth-, and fifth-grade students were given a questionnaire before the program and

immediately after the program.

Meal Time in Less Time: This three-lesson series developed by UI Faculty was used to teach how to plan quick and healthy meals, shop to save time and money, and prepare healthy meals using time-saving procedures. *Meal Time in Less Time* is also used to help teach elderly learners and others with nutrition-related diseases (e.g. diabetes) about meal planning and preparation. Thirty-one classes were presented to 458 learners by six different faculty members during 2006. A State grant and a partnership with the Humphrey Diabetes Education Center were used to advertise and deliver the program to a non-traditional urban audience.

Got Calcium?: The 4-lesson program was offered in six schools in 2006, teaching 515 youth about nutrition and physical activity principles. UI faculty teach *Osteoporosis Prevention and Treatment: Your Bones, Your Body*, another peer-reviewed curriculum about osteoporosis.

UI faculty developed a demonstration booth and provided information and answers to questions about osteoporosis to 245 visitors to the Kootenai County Wellness Fair.

EFNEP:

EFNEP partnered with WIC in Nampa and Caldwell to teach EFNEP lessons to English and Spanish-speaking clients. The Idaho EFNEP program participated in a one day Hunger Summit in Boise and as a member of the Idaho Interfaith Roundtable Against Hunger. EFNEP supported Bannock Arms Social Services by teaching a basic nutrition class to residents and working with Saint Vincent de Paul and the Christian Community Center to establish a soup kitchen in Garden City. The kitchen was promoted through fliers distributed at the Rescue Mission, The River of Life (aka Community House), downtown locations, and branch locations of Friendship Feasts.

Six EFNEP nutrition advisors taught lessons to 425 low-income families with children in Ada, Canyon and Elmore counties (92 percent with children under five-years). More than 1,600 family members were touched by EFNEP. Twenty-six agreements with other groups and agencies brought EFNEP into their programs and provided referrals or recruited clients for EFNEP. Thirty-two volunteers assisted the nutrition advisors. Together a total of 3,634 face-to-face contacts were made while recruiting and teaching EFNEP clients. EFNEP advisors also taught a series of lessons to 119 children in a summer program and to 78 children in an after school program.

Extension Nutrition Program (ENP):

Idaho's Food Stamp Nutrition Education (FSNE) program is called the *Extension Nutrition Program (ENP).* The Idaho ENP program is managed by a nutrition specialist and four county nutrition educators (one in each Extension district). The team includes a state coordinator and four district coordinators and is delivered in 28 counties by 24 nutrition advisors. Funding for Idaho ENP includes a $740,788

Federal grant originating with USDA-FNS plus $752,947 in State funds.

ENP classes covering dietary quality, food safety, food resource management, and physical activity were attended by 9,422 adults and 26,469 youth for a total of 35,891 direct contacts. Two behavior surveys, a retrospective survey and one-time class survey, were used to measure outcomes. A State grant was used to develop new reporting forms (12 one-time surveys to measure planned behaviors and four participant forms to measure direct education reporting requirements) for the new Education and Administrative Reporting System (EARS). The Food Stamp Nutrition Education program from Utah State University will also be using our forms in FY2007 and were trained by UI faculty in Boise.

A number of curricula used for other nutrition education programs are also incorporated into the ENP program, including *Steps to a New You* (that was delivered on site and through distance technologies), *Using a Food Thermometer*, cooking demonstrations, and other activities.

Factors Influencing Food Intake of Young Children:

Increased dietary variety results in increased nutrient intake, prompting researchers to study factors affecting young children's willingness to try new foods. Factors that appear to increase willingness to try new foods include exposure to the food and peer and adult role models who prefer the food. Work in 2006 included studies to understand how children self-regulate energy intake and how to promote culturally appropriate foods. Specific research questions asked are helping to identify: 1) factors that facilitate young children's healthy eating in child care and preschool programs, 2) factors that influence acceptance of novel foods and reliance on internal hunger and satiation cues, and 3) the quality and quantity of nutritional knowledge in childcare providers and impacts on feeding practices.

Working with children in grades K-2 and 6 in the Kalispell Tribal School, researchers studied how nutrition education and culinary activities can promote culturally appropriate foods. Changes in eating behaviors were determined by pre- and post-food frequency questionnaires. UI Faculty have presented several educational programs to parents and child care providers about factors influencing children's' eating habits

Health and Nutrition for Seniors:

Senior Extension Nutrition Program (SENP): Aging & Adult Services of North Idaho has made yearly funds available to UI Extension to provide education to high nutritional-risk seniors in hopes of keeping clients living healthier and happier lives. Elsewhere in the State, Extension partners with senior centers to deliver periodic lessons and articles on health and nutrition topics. The SENP nutrition advisors teach seniors in their homes or in centers, based on the educational model for EFNEP.

Senior Citizen Nutrition Talks: The purpose of this program is to increase nutritional

knowledge and promote behavior change. However, no data was collected for this project; thus, there is no way of documenting if there was an increase in knowledge or any change in behavior.

Fit and Fall Proof: This program is a six-week (two one-hour sessions per week) aerobic and resistance training exercise program for seniors to improve mobility, balance, and strength with the purpose of reducing risks of falls and injury. The classes were held in spring and fall in Southeast Idaho serving about 10 seniors in each class.

b. Program Outcomes

Fitness:

All *StrongWomen* participants increased the amount of weight used in exercise sessions and showed increased muscle mass. Participants reported feeling better and stronger, having fewer problems with arthritis, and having more mobility. The amount and type of food consumed from the various food groups was analyzed as well as soda and fast food consumption. When analyzing food consumption from the different food groups, the biggest increase occurred in milk/yogurt consumption, from 1.4 to 2.0 cups/day. There were slight increases in whole grain and cheese consumption and a slight decrease in total grain consumption.

Steps to a New You was evaluated through pre-, post- and follow up-surveys completed by a sample of 32 participants. It should be noted that this is an ongoing project and the last data collection will occur in March 2007. Improvement in diet was measured for dairy products consumed, fruit consumption and the number of grain servings that were whole grain. There was an increase in the percentage of people who stopped eating when full (from 28% to 57%) but a slight decrease in the percentage of people who ate when they experienced hunger pains (from 34% to 29%) or those that ate when they doing other activities (31% to 28%).
The number of participants who enjoyed physical activity increased and most added physical activity to their daily routine. There was a decrease in the percentage of people for whom body size is a barrier to activity. Body image results showed positive changes in 9 of 10 body image responses. BMI remained virtually unchanged from week 1 to 9, and decreased slightly at week 22. Resting Heart Rate decreased from 78.8 at week-1 to 71.5 at week-22. Steps recorded daily began at 3,908 steps per day at week-1 and peaked at 16,670 at week-8.

Diabetes:

Evaluation data collected from all participants in the *Healthy Eating with Diabetes* workshops indicates significant knowledge gained about recommended diets, health care options, and confidence to manage their condition. Participants in the *Healthy Diabetes Plate* program reported a 13 percent increase in physical activity as a result of the program. Replacement of dairy products with fat-free options increased by 13 percent, the number of participants who reported losing weight doubled, and

average BMI decreased. The number who reported their blood glucose levels within limits increased by 40 percent.

Dietary Guidelines:

Be Your Best with Breakfast: Third-, fourth-, and fifth-grade students demonstrated knowledge gained about breakfast behaviors and indicated intent to adopt recommended behaviors.

Meal Time in Less Time: A retrospective pre/post questionnaire and a six-month follow-up survey were used to assess knowledge gained and behaviors changed. Although overall increase in knowledge was not significant, some specific areas of knowledge showed meaningful improvement (such as: "I now know what to consider when planning meals"). Significant behavioral changes six-months after completing the program include: evaluating menus for ease of preparation; prioritizing purchase of non-perishable items compared to those requiring refrigeration; use of the nutrition facts label to evaluate nutrition content of foods; practicing thrifty shopping strategies to save time and money; adding whole grains, fruits, vegetables and dairy products to meals.

Got Calcium?: Five hundred-fifteen school children learned about nutrition and physical activity in relation to bone health. As a result of the educational program, research shows that nearly all of those children will have learned behaviors to reduce their risk of developing osteoporosis and more than half will decide to adopt one or more recommended behaviors.

EFNEP:

The Garden City Dining Room (GCDR) began in March 2006 and closed in August 2006. Monetary donations permitted the outsourcing of meal preparation to Life's Kitchen. During the time that the GCDR was open 4,195 people were served meals, for an average of 62 adults and children each night. One hundred and eighty-four individual and families volunteered and contributed 1,105 hours of service. Two hundred-fifty people attended the Hunger Summit and reached consensus on five steps they would take to help alleviate hunger in Idaho.

Two hundred seventy-four adults completed six or more EFNEP lessons and thus graduated from the program. Evaluation showed improved eating habits in a majority of the food groups. Exit scores from the Food Behavior Checklist showed that 95 percent of the graduates showed improvement in one or more food resource management skills; 97 percent showed improvement in one or more nutrition practices.

Extension Nutrition Program (ENP):

In 2006, ENP nutrition advisors taught 754 group or one-on-one education lessons to 1,433 adults and 3,480 children. Outcomes for adult learners include changes in knowledge and motivation including: 55 percent of clients who intend to modify their diets after participating in *MyPyramid* classes and 55 percent of clients planning to

adopt recommended procedures for thawing meat after participating in *Safe Food Handling* lessons. Youth education programs were also shown to increase knowledge and to motivate significant behavioral changes among learners, including: increased frequency and thoroughness of hand washing, increased weight bearing activity, and increased consumption of fruits and vegetables. Research shows that the long-term impacts of these behavioral changes include improved health, reduced risk of disease, and reduced cost for health care.

While outcomes are significant for individual classes and events, those who completed all six core ENP lessons had much higher rates of behavioral change. Results for those who completed the core lessons show gains in four dietary quality, four food safety, one physical activity, and six resource management behaviors. The greatest gains included the number of participants who use food labels to make food choices (435% increase), the number of participants who plan meals in advance (339% increase) and the number of participants who use a grocery list for shopping (193%). Perhaps the most meaningful outcome is that the number of participants who ran out of food before the end of the month was reduced by more than 77 percent, translating to 60 families who finally had enough to eat because of this program.

Health and Nutrition for Seniors:

Senior Extension Nutrition Program (SENP): Since September 2002, SENP has worked with 243 seniors with 122 graduates. Nutrition Advisors have taught over 1,710 lessons. Since 2005, 40 new clients have been referred to our program and there have been 24 graduates.

Pre- and post-learning surveys of graduates indicate that the number of seniors who eat recommended servings of fruits, vegetables, and dairy products has doubled. A significant shift in eating habits among graduates has also been documented. Before the class 21 percent ate only one or two meals per day and 40 percent ate four or five times per day. Following the training the number of individuals who ate only once or twice was down to four percent while the number eating four or five times per day was up to 62 percent.

Fit and Fall Proof: To measure impact for the *Fit and Fall Proof* classes, each participant was given a Three-Meter Timed Up and Go Test at the beginning and end of each six-week exercise program. The length of time it takes participants to complete this test has been found to be indicative of a participant's balance, gait speed, functional capacity for household and community mobility, and risk of falling. Participants who complete the test in fewer than 10 seconds are considered freely mobile with a low fall risk. A t-test was used to compare the pre and post Three-Meter Timed Up and Go Test scores of participants. Participants average post-test scores (5.73 seconds) were significantly lower than their average pre-test scores (7.96 seconds) ($p<0.01$).

c. Source of Funds

Support for Human Health and Nutrition programs includes $224,060 from Smith-Lever EFNEP (85% of the total EFNEP distribution to Idaho) and $607,446 from the FNS-USDA grant for ENP (85% of the total FNS grant to Idaho). $617,417 in State appropriations for Agricultural Research and Extension are expended for this program, including the match required for the FNS grant. County appropriations for University of Idaho Extension include $14,278 for Health and Nutrition programs, and another $18,500 in grants from State and private sources supports these programs.

d. Scope

The Human Health and Nutrition Team delivers educational programs and information Statewide. EFNEP and ENP are delivered in 32 of 44 counties. Approximately 0.1 FTEs are invested in the multistate component of *Steps to a New You*, in cooperation with Montana State and the University of Wyoming. Less formal collaborations with other states are ongoing and contribute to the development and testing of educational curricula, sharing of information, and creating and delivering professional development opportunities.

GOAL 4: GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT.

Overview

a. Outputs:

University of Idaho Extension faculty devoted 17.76 FTEs of activity in projects related to agriculture and the environment. Extension faculty produced five journal articles, 20 abstracts and proceedings, six project reports, one book chapter, two newly developed curriculum, 43 extension publications, and 219 popular press articles. Educational presentations included 29 workshops, classes and short-courses, 74 field days, and 113 other educational presentations. In total, faculty and staff reached a total of 34,333 teaching contacts.

b. Outcomes:

Extension programs in Idaho have delivered valuable programming to help residents, producers, growers, workers, and industry professionals make more informed decisions that affect the sustainability of our agricultural systems and the environment.

Participants in Commercial and Consumer Horticulture programs are now better equipped with knowledge of innovative practices to address water conservation, plant diagnostics, and pesticide safety issues within the state. Demonstration projects conducted by extension faculty add new knowledge to the citizens of Idaho. One such project, which investigated water conservation based on variety selection, showed that an attractive appearance can be achieved on a properly fertilized

perennial rye lawn with 40-60 percent less applied water compared to the conventional Kentucky bluegrass lawn. Another demonstration project showed how an estimated 9.8 million gallons of groundwater could be conserved by rural subdivisions by converting to a central pressurized irrigation system.

The Idaho Forest Stewardship program was offered to private forest owners who manage thousands of acres of Idaho forestland. About 85 percent of participants in these workshops learned new information that will help them make better natural resource decisions and implement new and better land management practices. Other areas of extension forest programming included logger education and natural resource professional education.

Extension research in Nutrient and Waste Management has tested a nitrogen management approach in potato production that could help producers increase net profits by $150 per acre without using any additional nitrogen fertilizer. Several agronomists adopted this methodology in 2006. A multistate collaboration to offer online proficiency testing for Certified Crop Advisors (CCA) is now available to help CCAs maintain their certification without incurring travel expense.

Pest outbreak and pesticide management information is provided to growers and field representatives throughout the Pacific Northwest via a collaborative multistate website, PNWPestAlert.net. Growers now have easy access to up-to-date pest management information that has had a positive impact on the agriculture industry in the Treasure Valley and southern Idaho. A recent survey of subscribers indicates a 5.3 percent reduction in chemical use on crops which corresponds to lower costs and increased benefits to the environment.

Workshops and trainings in grazing management and rangeland pest management provided producers, land managers, and agency personnel with educational resources to better manage Idaho's rangeland ecosystems. A new multistate project will examine the sustainability and fragmentation of rangeland resources.

Extension has brought new knowledge to people across Idaho by connecting residents, policy makers, and educators with educational resources related to water quality. Extension delivered workshops highlighting the current science, policies, and management of PNW groundwater resources which aided in strengthening the connections between research, extension, regulatory, and technical assistance groups.

c. Impacts

Extension programming in commercial and consumer horticulture has transferred knowledge and awareness concerning sustainable principles of gardening and landscaping, plant pests and related control tactics, and the green industry in Idaho. An example of successful programming relates to water efficiency in landscaping where participants gained an increased awareness of xeriscaping techniques and principles. Several attendees later replanted sections of their yards using xeriscape techniques and now more xeric plant materials are being offered by Idaho nurseries.

As a result of ornamentals nursery workshops, 83 percent of attendees reported that they have used information provided in workshops to improve their nursery operations.

Family forest owners and professional managers, UI faculty and students, forest businesses, and community leaders have increased knowledge of biological, ecological, social, and economic principles and techniques to improve and maintain the health, productivity and economic viability of the lands and forestry-dependent enterprises. Educators and decision makers have timely, science-based information to help them formulate teaching plans and public input and policy for sustainable, healthy, and economically productive natural resources.

Extension personnel provided many education opportunities and resources for Nutrient Waste Management planners, agronomists, consultants and producers throughout Idaho. As a result of efforts in nutrient and waste management education and research, improved information and guidelines are available to growers.

Hundreds of participants received pesticide safety instruction via Extension programming efforts. As a result, environmental risks will be lower, more effective spraying techniques will be utilized, and more effective field scouting will document pest levels before implementing control measures.

Many Idaho ranchers and agency personnel have increased their awareness and have adopted new, accepted, or recommended grazing management and rangeland monitoring practices as a result of Extension programming efforts. Idaho FFA youth have an increased understanding of rangeland ecology and management principles. Ranchers and agency personnel learned the latest integrated weed management techniques for rangeland weed control and implemented IPM techniques to reduce pest problems. Ranchers and growers learned best management practices (BMPs) for irrigated pastures to increase forage production efficiency.

Water education programs aimed at informing Idaho politicians about current research at land grant institutions have been successful and politicians have used this information to make more informed policy decisions. Extension demonstration projects have helped Idaho growers improve their irrigation water efficiency by using soil moisture sensors in irrigation strategies. Consequently, growers are gaining higher crop yields while saving on costs associated with irrigation power and labor.

d. Accomplishments:

Extension accomplishments in Goal 4 projects are evaluated by comparing planned outputs to actual outputs reported as performance measures. Planned outputs and accomplishments for Goal 4 are as follows:

	Number Planned	Number achieved

Face-to-face teaching contacts	46,070	34,333
Schools and Workshops	290	441
Extension-type publications	8	83
Journal articles, proceedings and abstracts	18	20
Volunteer service hours	9,800	11,000

Most Topic Teams reporting to Goal 4 forecast fairly accurately the total number of teaching contacts, with the exception of the Commercial and Consumer Horticulture team that overestimated by about 80 percent. Numbers of schools and workshops and numbers of Extension publications were underestimated by all of the topic teams. Because this is the first year for this organization to compare targets with actual outputs, there is insufficient data to determine success. Forecasts can be expected to improve as experience with estimating outputs is increased.

e. Total expenditures/ source of funding and FTEs

Topic Teams working on projects in Goal 4 were supported by $900,353 in Federal, State, and local grants from public and private sources. Appropriated funds accounted for approximately $1,855,211 in support for Goal 4, including: $554,217 from Smith-Lever 3(b&c); Smith-Lever 3(d) included $53,952 for RREA and $70,286 for Pest Management; $1,159,512 from State appropriations for Agricultural Research and Extension; and $17,244 from County appropriations for University Extension.

Commercial and Consumer Horticulture Topic Team

a. Inputs and Outputs

A total of 8.04 FTEs were contributed to this topic area from 32 faculty members. Commercial and consumer horticulture education included over 500 presentations including 172 workshops and classes, 64 field tours, and 36 seminars. Faculty reported 987 contacts in office visits and over 11,000 master gardener volunteer hours toward community projects and outreach. A total of 22,330 face-to-face contacts were reported in this topic area. Publications included 106 popular press articles, 67 service articles, 17 extension publications, three academic publications, and two published teaching series.

Consumer Horticulture Education:

Efforts in consumer education were aimed at improving general horticultural knowledge and skills among Idaho's homeowners and gardeners. Specifically 1)

increasing consumer knowledge concerning sustainable principles of gardening and landscaping and improving their ability to effectively understand and utilize horticultural products, 2) increasing the availability of information about plant pests and related control tactics, and 3) increasing the consumers ability to effectively interface with horticulturally-based companies.

Water Efficient Landscaping: University of Idaho Extension, United Water Idaho, and Boise Public Works Department teamed up to offer a 7-week course, called Water Efficient Landscaping. This annual educational program helped to build awareness and encourage the use of water efficient landscaping (xeriscaping) and other water conserving methods. Three xeric demonstration gardens were installed as an educational resource for clientele. Over 650 participants attended this series.

Women's Prison Horticultural Education: A women's prison in Idaho received a large grant to put in a new greenhouse for the inmates. UI Extension personnel provided educational workshops aimed at teaching the inmates how to effectively manage a greenhouse. Courses taught included: composting in the greenhouse, watering the greenhouse, and starting seedlings indoors.

Sustainable Landscapes: A consumer education course was developed with emphasis on best management practices for traditional landscapes, establishment and care of water-conserving landscapes, and food production in the home setting (emphasis on vegetable gardening). Workshop materials were developed for home vegetable production and Master Ggardener trainings included information on soils and vegetable production. Demonstration plots were established for native plants, turf grasses, ornamental grasses, and hardy roses.

Demonstration Projects:

Lawn Irrigation and Fertility Project: Demonstration plots were developed to investigate the effects of moderate to severe water stress and fertilization on the appearance of 3 varieties of grasses: perennial ryegrass, Kentucky bluegrass, and turf-type tall fescue. The plots were water-stressed into dormancy in the summer of 2005.

Living on the Land Project: The 2006 effort has focused on design and installation of a pressurized irrigation system to replace individual homeowner surface irrigation systems. Demonstration plots were created in local subdivisions to help educate homeowners about improving irrigation water management.

Master Gardener Education:

Training: Faculty reported 143 workshops and classes delivered in Master Gardener education. Master Gardener programs delivered educational resources to 11,215 individuals in Idaho.

Many volunteer hours are donated as part of Master Gardener training and a few

noteworthy community projects include: installation of a landscape at a Habitat for Humanity house, planting and maintaining vegetable plots for residents at an assisted living facility, and landscaping at local women's shelters.

Distance Education Pilot Project: Extension faculty developed an alternative educational delivery format to deliver Master Gardener training using distance technology - specifically live, statewide interactive video and simultaneous web-based streaming video. Faculty prepared 42 pages of written seminar notes and accompanying slide handouts that were made available for downloading. Two 3-hour seminars were delivered by streaming video on the web and 2-way interactive (compressed) video. Total attendance was 88 persons.

Spanish Master Gardener Program: Master Gardener programming has been delivered in Spanish over the past three years with great success. Comments from program evaluations led to the development and use of a Spanish-language Gardening Handbook. This handbook has been written by various UI educators, specialists, and horticultural assistants.

Junior Master Gardeners: *JMG* is a program for youth of all ages that uses fun activities to teach horticulture and environmental science concepts. Children can be involved in exploring their world through meaningful activities that encourage leadership development, personal pride, responsibility, and community involvement. Older youth are trained to mentor younger children participating in the program.

Multistate MG Program: This year marked the second year that UI Extension collaborated with extension educators from Utah to deliver a more effective Master Gardener class. This collaboration has allowed us to offer the best teaching staff and the most interesting and useful classes possible. Out of 14 Master Gardener classes taught between Utah and Idaho, 394 students attended these classes (an increase of 67 students over 2005).

Green Industry Education:

The goal of this project is to improve educational opportunities for green industry professionals, including employees and managers of garden centers, production nurseries, lawn care companies, and maintenance personnel for parks departments, commercial properties, and school grounds. UI Extension created and collected informational resources available for extension specialists and county faculty to conduct one-on-one training, workshops, lectures, and conferences.

A series of workshops and conferences was presented for nursery and landscape industries throughout Idaho. Information was provided on tree problem diagnosis, insect and mite problems in woody ornamentals, crown gall in ornamentals, quality potting mixes, and techniques for pruning nursery plant roots and landscape plants. UI Extension also participated on numerous community planning committees to develop and deliver education programs and provided valuable plant diagnostic services to green industry workers.

The *Ornamentals Nursery Workshop* was an all-day event for nursery industry growers featuring 6 speakers and offering two pesticide credits. The 2006 Ornamentals Nursery Workshop was attended by 47 people, 25 of whom each received two pesticide license credits. The *Turf, Tree, and Landscape Conference* was a 2-day, multi-track conference for landscape contractors, arborists, landscape architects, and other landscape professionals. The conference was held in Coeur d'Alene and was attended by approximately 300 people. A website was developed to more effectively deliver relevant information to green industry professionals. A web-course titled “Diagnosing Plant Problems” was developed to provide appropriate, relevant, and up-to-date diagnosis information for green industry professionals. The Idaho Department of Agriculture is reviewing the course content to determine if pesticide recertification credits can be offered.

b. Program Outcomes:

Consumer Horticulture Education:

Water Efficient Landscaping: Participants in this course demonstrated an increased awareness of xeriscaping techniques and principles. Several attendees replanted sections of their yards using xeriscape techniques. More xeric plant materials are now being offered by nurseries in Southern Idaho.

Lawn Irrigation and Fertility Project: Results of the research conducted on the 3-grass demonstration plots indicate that perennial rye is superior in appearance to either Kentucky bluegrass or turf-type tall fescue under moderate to severe water stress. Adequate N fertility improves plant vigor and produces better grass appearance, even under drought stress. An attractive appearance can be achieved on a properly fertilized perennial rye lawn with 40-60 percent less applied water relative to Kentucky bluegrass. Soil fertility was more important than level of irrigation in enhancing recovery from water-stress induced dormancy. This knowledge adds value to choices consumers will make when choosing a grass species to seed into their landscapes in water-limited environments.

Living on the Land Project: As a result of the project, about 10 acres previously irrigated from individual homeowner wells are now irrigated by canal water. Estimated savings in groundwater pumping are about 9.8 million gallons per year. Estimated reduction in surface water demand due to conversion from surface to sprinkler irrigation is about 158,700,000 gallons per year. This project serves as a model for other existing rural subdivisions that wish to convert to a central pressurized system and for future subdivisions as an example of what type of design and hardware should be required by planning and zoning for future subdivision approval. A video detailing project goals, progress, and difficulties encountered in retrofitting an existing subdivision with a new pressurized irrigation system is nearly completed.

Master Gardener Education:

Training: Knowledge gain is assessed as percentage increase in knowledge

demonstrated by participants. All program participants improved their horticultural knowledge and skills as evidenced by pre- and post- exams. Some of the MG participants have started their own businesses or are finding work in the green industry. Trained Master Gardeners provide a valuable resource to Idaho residents.

Distance Education Pilot Project: With the exception of decreased ability to ask questions, participants said that, on average, other aspects of distance education compared favorably with on-site workshops. Participants rated the audiovisual quality of both streaming video and interactive video as about the same as live, local workshops. Audiences also said on average their ability to learn was about the same as at on-site seminars. Pilot audiences said they would participate again in both streaming and interactive video and would recommend that other Master Gardeners participate via these technologies. Pilot participants clearly do not want distance education technologies to replace live, county-based workshops; they instead want distance technologies to augment locally-delivered programs.

Multistate MG Program: Participants in Master Gardener programs were surveyed before and after the course. Results indicate a significant increase in knowledge gained. Those classes that exhibited the largest gain in knowledge were the following: grafting and pruning, lawn care, tree selection, fruit production, entomology, and irrigation.

Green Industry Education:

In evaluations of presentations at workshops and classes for green industry personnel, participants indicated that they found the courses relevant and effective, and that they planned to apply the concepts they learned.

Ornamentals Nursery Workshop: This workshop is attended regularly by many nursery growers in northern Idaho. On a program evaluation, 81 percent indicated that they attend every year or most years; 19 percent were attending their first workshop. Most growers (83 percent of those who have attended in previous years) said that they have used information presented to improve their nursery operation. Of those completing the evaluations, growers indicated they managed a total of 585 acres of nursery and Christmas tree production.

Green Industry Website: The number of website hits recorded in 2006 was 4,681, almost double the number of visits (2,485) during the previous year. In addition, downloads from the nursery web site were 4,238 indicating that people were using information provided at the web site.

c. Source of funds

Approximately $65,275 in grants was invested in this project area. Appropriated support for the Commercial and Consumer Horticulture program included approximately $246,080 from Smith-Lever 3(b&c), $514,840 in State appropriations for Agricultural Research and Extension, and $7,657 in county appropriations for University Extension.

d. Scope

The Consumer and Commercial Horticulture program is conducted statewide, with significant presence in nearly every county. Multistate projects reported by faculty involved 0.24 FTEs of effort devoted to joint Master Gardener training projects with Utah, and Wyoming; community water planning across the state border with Oregon; and providing support to Christmas tree farms and commercial nurseries in Eastern Washington and Western Montana.

Forest Management Topic Team

a. Inputs and Outputs:

Five Extension personnel reported to this topic team contributing 3.15 FTEs. A total of 52 presentations were delivered in this topic area including 38 workshops, two short courses, six conference presentations, five field days, and two seminars; reaching a total of 3,251 learners. Faculty reported 31 publications which include 15 extension publications, 13 popular press articles, and three industry publications.

Family Forest Owners:

A needs assessment was conducted for family forest owners through focus groups, periodic formal needs assessment meetings with the board of the Idaho Forest Owners Association, program evaluations, and individual and group consultations with cooperating agencies and institutions.

Idaho Forest Stewardship program: As part of the Idaho Forest Stewardship program, a cooperative effort with the Idaho Dept. of Lands (IDL) and many other partners, UI Extension provided a series of workshops, field days and other educational activities titled “Strengthening Forest Stewardship Skills” (supported in part by the USFS through the IDL). The activities are designed to strengthen forest owners' ability to implement practices that improve forest health and growth.

Woodland Notes: A forestry newsletter providing practical advice on forest management is mailed out twice annually to over 4,000 Idaho panhandle forest owners. It is often the only consistent contact absentee forest owners have with professional forestry (roughly a third of panhandle forest owners receiving Woodland Notes reside out-of-state or south of Idaho County).

Panhandle forest owners can choose from over 140 forestry Extension publications available through local UI Extension offices. Recent Extension videos on water quality, selective logging, and forest tax management, provide additional resources to help forest owners learn on their own.

Loggers:

Logger Education to Advance Professionalism (LEAP): 2006 LEAP programs delivered over 20 hours of training designed to increase loggers' understanding and skills related to forest ecology, silviculture, and water quality. The program is instructed by University of Idaho faculty, with additional presentations from Idaho Dept. of Lands personnel on state forestry laws and insects and disease. Enrollment

is limited to 30 loggers per session for an effective learning environment.

LEAP Update: This is an annual 2-day program in which LEAP graduates build on their professional development with in-depth training on a variety of forestry topics identified each year by loggers. Three sessions were held in 2006.

Idaho "Pro-Logger" program: Administered through the Associated Logging Contractors of Idaho (ALC), the Pro-Logger credential requires participation in LEAP and 16 credits of continuing education annually.

Natural Resource Professionals:

Needs assessment for Panhandle Extension programming for natural resource professionals was based on interactions with professionals, program evaluations, and individual and group consultations with cooperating agencies and institutions such as Washington State University, the Society of American Foresters, the USFS Rocky Mountain Experiment Station and Region 1 researchers, the Idaho Department of Lands, and other UI faculty.

Family Foresters Workshop: Extension Systems of the University of Idaho and Washington State University have cooperated to hold an annual forum for consulting foresters, state foresters, and other natural resource professionals working with family forest owners. The program updates participants on emerging technology and knowledge applicable to family forestry. It alternates between northern Idaho and eastern Washington locations.

Inland Northwest Wildland Urban Interface Conference: Offered jointly by UI and WSU in 2005 and 2006, this conference offered rural policy makers, local agency staff, contractors, realtors, foresters, and residents opportunities to learn about current research and apply it to policies and activities in the wildland urban interface.

Strengthening Forest Stewardship Skills: This program series focuses on increasing private forest owners' forest management skills. Society of American Foresters' continuing forestry education (CFE) credit was provided for Extension programs titled: "Current Topics in Forest Health", "Scaling & Marketing Private Timber", “Managing Forest Organic Debris & Slash”, "The Habitat Field Day" “Using your GPS”, and the "Forest Insect & Disease Field Day".

Forestry Short course: This program allows K-12 teachers to obtain university credit for programs that help them integrate forest science into their classrooms.

b. Program Outcomes

Family Forest Owners:

Forestry Tree Clinic: The UI Extension Forestry Tree Clinic diagnosed and recommended control for 177 tree samples submitted to the clinic from 16 Idaho counties and by professionals in 5 additional states. This service allowed 16 UI County Faculty members and/or Master Gardener supervisors to provide better service to their county clientele. Additionally, natural resource professionals in Wyoming, Washington, Oregon, Arizona, and Colorado were able to provide better service to their clientele.

Idaho Forest Stewardship program: Post-event evaluations of formal educational programs show that about 85 percent of participants learned new information that will help them make better natural resource decisions and implement new and better land management practices.

In 2006, 385 owners of nearly 48,000 private forest acres attended Extension workshops and other educational activities in the Idaho panhandle. In most program evaluations, fewer than half of participants indicated previous involvement in various forestry education or assistance programs. Based on evaluation results, 97 panhandle family forest owners will monitor for insect, disease, or animal damage, 70 will thin forest trees, 56 will manage to favor larch and pines, 54 will prune forest trees, 53 will attend additional forestry education programs, 48 will complete a forest management plan, and 44 will reduce vegetation competing with tree seedlings.

Loggers:

LEAP and LEAP Update: Thirty-two people attended one LEAP session held in the Idaho Panhandle in 2006. One-hundred seventy-four loggers attended LEAP Updates. As a result of LEAP Updates: 160 loggers will identify and respond to root disease; 50 loggers will look into biodiesel for forestry operations; 137 loggers will use a GPS unit more effectively; 155 loggers will comply more thoroughly with EPA stream requirements.

Idaho Pro-Logger program: Over 870 loggers have signed up for this program.

Strengthening Forest Stewardship Skills: 158 loggers attended 2006 Extension forestry programs, such as “Current Topics in Forest Health”, “Scaling & Marketing Private Timber”, and the “Thinning and Pruning Field Day”. In total, UI Extension provided 1,920 contact hours of continuing education for panhandle loggers.

Natural Resource Professionals:

Weeds of forest systems: One-hundred-ninety natural resource professionals received training on noxious weeds at workshops and field days. An article on Scotch Broom was published and a weed brochure was developed for the Frank Church Wilderness.

Family Forester's Workshop: 92 percent of the participants indicated they are able to work more effectively with family forest owners as a result of the program.

Forestry Shortcourse: Three Idaho panhandle teachers took the forestry shortcourse for credit in 2006.

Inland Northwest Wildland Urban Interface Conference: The first annual session was attended by 116 people. Participants reported a significant knowledge gain in several topic areas including land use planning, WUI demographic trends, hazardous fuel planning, and insurance for WUI homes. Fifty-eight people attended the second annual Inland Northwest Wildland Urban Interface Conference.

Participants reported a knowledge gain in several topic areas including fire and climate change, sense of place, natural resource leadership, and WUI geospatial applications.

c. Source of funds

Grants totaling $11,000 were received to support this topic area. Federal funds invested in the forestry Topic Team included $85,969 from Smith-Lever 3(b&c) and $53,952 from 3(d)-RREA. State appropriations for Agricultural Research and Extension made up $131,568 and county appropriations for University of Idaho Extension contributed $1,957 to this program area.

d. Scope

The Forestry program is most active in Northern Idaho (particularly in the five panhandle counties and Clearwater and Idaho Counties) and in adjacent counties in Washington and Montana. Faculty invested 0.6 FTEs in multistate effort, involving several educational activities for resource managers including an educational needs assessment, the family forester's workshop, and wildland-urban interface workshop with Washington State University, and forestry tree clinic serving professionals from Oregon, Arizona, Wyoming, Colorado, and Washington.

Nutrient and Waste Management Topic Team

a. Inputs and Outputs

UI Extension faculty members contributed a total of 1.61 FTEs to the nutrient and waste management topic area. Publications included two refereed journal articles, one book chapter, ten abstracts and proceedings, four extension publications, six research reports, and one service article. UI Extension delivered a total of 59 presentations at workshops and trainings, field days, conferences, and industry meetings reaching a total of 1,539 learners.

Nutrient and Waste Management Education:

Extension personnel provided many education opportunities and resources for Nutrient Waste Management planners, agronomists, consultants and producers throughout Idaho. Outreach materials included guidelines for Best Management Practices in nutrient and waste management. Presentations were given at the Idaho Nutrient Management Conference, the Northwest Alfalfa Seed Growers Winter Seed School, the Snake River Sugarbeet Conference, and other regional agriculture conferences. Nutrient management training sessions provided information to sugarbeet and wheat growers in Idaho.

UI Extension faculty, in collaboration with professionals from OSU, have created an online proficiency testing for Certified Crop Advisors (CCA) to maintain their certification without incurring travel expense. Tests are currently available for online credit on the ASA website and 15 CCA PNW regional credits were obtained online as of October 2006. Courses developed by UI faculty include: Nutrient Management for Onions in the PNW (2 credits), Potato Production with Limited Water Supply (1

credit), Monitoring Soil Nutrients Using a Management Unit Approach (1 credit), and Acidifying Soil for Crop Production West of the Cascades (1 credit).

Nitrogen Management for Hard Wheat Protein Enhancement (PNW 578), now in its second year of publication and second printing, has sold 212 hard copies in 2006 and has been downloaded 2,108 times. The publication was produced cooperatively with Oregon State University and Washington State University.

Nutrient and Waste Management Research: Crops:

Nutrient Management in Potatoes and Associated Crops

The Nutrient Management and Cycling project has several research and extension components. Four projects are completed and approaching publication. One recently completed project was focused on optimization of nitrogen fertilization in a potato-grain cropping system using geospatial (GIS, GPS, etc.) technologies. This project involved variable rate application of nitrogen to: 1) potatoes pre-season, 2) potatoes in-season, and 3) barley pre-season. Several methods of separating a field into unique nitrogen management zones were compared to traditional, uniform applications in fifteen farm fields over three years. The experiments employ optical sensors to measure plant health and, by inference, nitrogen status. The goal is to use a sprayer equipped with optical sensors over each variable flow control spray nozzle and to adjust nitrogen rates every 2-3 feet based on real-time measurements.

Another completed project showed that pre-plant fertilization of phosphorus was financially and agronomically more efficient than phosphorus injected into the irrigation water, but that the water-run phosphorus could be utilized as a rescue treatment if plant tissue (petiole) analysis indicated a deficiency.

Sugarbeets often follow potatoes in the rotation cycle and growers often skimp on fertilizer due to the large quantities applied to potatoes and their relatively shallow and inefficient rooting system. However, we found that we could add a low rate of banded fertilizer and significantly increase yields (2-3 tons per acre) without reducing the amount of extractable sugar. Results of this project have been published in the *Fluid Journal* and several Extension publications.

Several other applied research/Extension demonstration projects are in progress, including: phosphorus-micronutrient-crop interactions in potatoes and grains; enhanced fertilizer efficiency through band placement; enhanced fertilizer efficiency through polymer coatings and blends; variety differences in phosphorus need; and rate/timing studies on phosphorus, potassium, sulfur, and boron. One project evaluated the use of a non-ionic surfactant to overcome the effects of hydrophobicity in water repellent sands. We found that we could increase tuber yields and quality significantly by use of the surfactant in sandy soils subject to this problem.

Onions: Two manuscripts were submitted for journal consideration from the SARE biofumigants project. Two presentations were made at the Second International Biofumigants Symposium.

Sugarbeets: We completed four years of study, as part of a USDA Cooperative Agreement, involving nitrogen cycling for sugarbeets from applied dairy compost and manure. The project involves several ARS scientists and UI faculty. Field trials were completed involving the third and fourth year of cropping after treatment.

Winter and spring wheat: The second year of a slow release N source evaluation for HRS was conducted. Total protein and protein concentration was higher for a controlled release N source. A first year field study was completed for pre-plant slow release N evaluation for winter wheat.

Alfalfa Seed: The third year of study was completed to evaluate the seed and bloom response of alfalfa seed to a range of soil test P to determine the optimal soil test P range for seed production. The work was funded by the Idaho Alfalfa and Clover Seed Commission. We found a negative seed yield response to higher soil P for the third year.

Triticale: Completed the second year of a field study to better document forage triticale and wheat P concentrations at different growth stages as affected by available soil P resulting from previous heavy manure or compost applications. The relative response of boot stage forage and grain were also evaluated. Completed the first year of field work on an N rate and timing study for boot stage forage yield and quality.

Barley: Completed the second year of a field study to evaluate barley low-phytate gene expression as affected by low to high available soil P. Planting date effects on low-phytate barley test weights were also evaluated. First year of field study involving waxy barley protein, beta-glucan, and starch functionality response to N rate and late season applied N was completed.

Nutrient and Waste Management team will continue field studies related to: 1) N sources for winter and spring wheat, 2) late season N for higher protein barley, and 3) N management for winter triticale forage production and P removal. Funding will be pursued for: 1) alternative N source evaluations for wheat, 2) alfalfa seed production fertilization requirements, and 3) N management for maximizing winter forage production and P removal. Research results will be summarized for use in presentations and publication in appropriate articles, progress reports, proceedings, and manuscripts (especially biofumigant and wheat collaborative projects).

b. Program Outcomes

Nutrient and Waste Management Research: Crops:

Nutrient Management in Potatoes and Associated Crops: Identifying nitrogen management zones within a field significantly increased potato tuber yield and quality while residual soil nitrate was reduced. The most productive soils in each field required more nitrogen and the least productive soils required less, due to plant demand differences. The bottom-line was that this management approach netted

over $150 per acre without additional nitrogen fertilizer, which was simply redistributed based on crop need. Several agronomists have adopted this methodology in 2006.

Algorithms have been developed to link optical sensor measurements to nitrogen requirements in mid-season potato crops, and are soon to be published. Additional verification is necessary prior to application, and is being pursued. The nutrient management projects for potato rotations have the potential to increase grower profits and to reduce nitrate contamination to groundwater because the nitrogen fertilizer is used more efficiently.

c. Source of funds

Faculty obtained federal grant funds in the amount of $149,869 and $3,100 in state grants. Federal investment included $ 62,886 in Smith-Lever 3 (b&c) funds; $131,568 in State appropriations for Agricultural Research and Extension and $1,084 in County appropriations for University Extension supported the program.

d. Scope

The nutrient and waste management program is traditionally statewide and includes both soil fertility and animal waste management components. Multistate activity involved approximately 0.06 FTEs and was limited to the online proficiency testing for Certified Crop Advisors (CCA) collaboration with Oregon State University and several PNW publications in collaboration with Oregon State and Washington State Universities.

Pest Management and Education Topic Team

a. Inputs and Outputs

Pesticide Recertification Training:

Eleven faculty members contributed 0.84 FTEs to pest management education. Presentations included 29 workshops, classes and short courses and four seminars reaching 1,349 individuals. Faculty reported seven extension publications and 13 service articles.

Pesticide Safety Instruction: In a collaborative effort with ISDA and Simplot, UI Extension faculty offered pesticide applicator certification trainings. Spanish-speaking clientele have historically been underserved by the pesticide safety training program. Grant funds provided a training to educate Spanish-speaking pesticide handlers and farm workers about proper pesticide safety.

PNWPestAlert.net: PNWPestAlert.net is a multistate effort that has had a positive impact on the agriculture industry in the Treasure Valley and southern Idaho. The website is designed to increase communication and provide timely pest outbreak information to growers and field representatives. There are currently nine UI and three OSU Extension faculty collaborating on this project which is funded by several

Idaho and Oregon commodity commissions.

b. Program Outcomes

Pesticide Recertification Training:

Pesticide Safety Instruction: Trainings were attended by 64 participants. Results of participant evaluations show that the subject matter taught can be used by participants to make their jobs safer. One-hundred-ten students received insect training and pesticide recertification credits from programs delivered by Idaho and Oregon faculty at the OSU Entomology Short Course.

PNWPestAlert.net: As a result of information provided by website, 11 percent of subscribers reduced the number of sprays applied to their crops, 28 percent said their spray applications were more effective because they received timely information they could use to help them make pest management decisions, and 51 percent of website subscribers reported they have increased their use of field scouting to document pest levels before implementing control measures. The 2005 survey also indicates that subscribers are using 5.3 percent less chemical on their crops than they were before they used the pest alert network. If this decrease in chemical usage was applied to only potato production across all of Idaho it would mean a savings to growers of nearly 6.9 million dollars and an additional benefit to the environment.

c. Source of funds

Over $9,584 in grant funds supported pesticide education. Appropriated Federal support included $2,685 from Smith-Lever 3(b&c) and $70,286 for Pest Management (3d). State appropriations for Agricultural Research and Extension contributed $5,618 to the program and county appropriations included approximately $1,084.

d. Scope

Only a small portion of Idaho Extension pest programs are reported in this section. Other pieces are described as part of cereal, potato, range, and other crop topics. Faculty reported 0.19 FTEs in multistate activity. The TV Pest Alert Network impacts southern Idaho and SE Oregon, and receives support from Oregon grower organizations and OSU faculty. A significant number of pesticide recertification credits for Idaho growers are possible because of collaboration with Oregon State faculty who teach several of the courses.

Range Management Topic Team

a. Inputs and Outputs

Fifteen University of Idaho extension personnel reported to this project, contributing a total of 3.0 FTEs. Educational presentations included 63 workshops and classes, 18 seminars and conference presentations, and 19 office visits reaching 4,599 learners including ranchers, agency personnel, and public officials. Faculty reported

30 publications including nine academic articles in journals, abstracts and proceedings, 12 extension publications, two industry articles, and seven project reports.

Grazing Management Practices:

Information and recommendations were provided to several ranchers and agency personnel on grazing management and rangeland monitoring through participation in meetings, range tours and one-on-one contact and workshops. Twenty-five presentations were delivered at workshops, trainings, conferences, and tours related to grazing management. Eight presentations were delivered at professional conferences and public meetings. Faculty organized two range tours and a 4-H day camp and conducted numerous farm visits. Five significant journal articles were developed and published related to factors affecting ranch values, identifying public land-user motives, sustainability of rangelands, grazing permit value, and livestock distribution issues. Two professional abstracts and one conference proceedings were published along with seven extension and two service publications.

Rangeland Monitoring: A 3-day riparian monitoring workshop and two range tours with a demonstration and discussion of rangeland monitoring methods were delivered. Permanent range trend monitoring transects/photo points were established on 10 allotments on the City of Rocks National Reserve. A Range Monitoring Guide for Ranchers was developed and posted on the Department of Rangeland Ecology and Management website and printed copies were provided to workshop attendees. Funds were obtained from the Bureau of Indian Affairs to conduct a new inventory and range management plan on the Fort Hall Reservation. Monitoring efforts included tracking livestock fatalities as a result of poisonous plant ingestion. Training was provided to Tribal departments on range permit bidding processes.

Grazing Management Plans: Several Forest Service and Bureau of Land Management environmental impact statements, allotment management plans, and other planning activities were reviewed and commented on by Extension faculty. Grant funds obtained from the National Park Service were used to update the grazing and monitoring plan on the City of Rocks National Reserve.

Youth Education: Extension faculty helped provide plant specimens for the State FFA range judging contest. Eighty high school students from 20 schools participated in the contest. Wildlife II 4-H Day Camp was attended by 30 youth. Youth completed a project book and gave individual presentations, demonstrating their knowledge gained.

Muleshoe Cattle Distribution Project: This is a cooperative project between the University of Idaho Department of Rangeland Ecology and Management, Muleshoe Ranch, Ridley Block, Lemhi County Extension, Forest Service, Bureau of Land Management, Natural Resource Conservation Service and Idaho Department of Agriculture. This project examines the use of low-moisture protein blocks to improve

cattle distribution on the Muleshoe allotment. Digitized maps of cattle distribution will be compared to utilization maps compiled by the BLM.

Birch Creek Winter Forage Trial: A winter forage trial is being conducted in Birch Creek near Lone Pine, ID. The winter forage trial will demonstrate forages that can be grazed in late fall and winter to allow for extended grazing periods and reduced hay feeding costs. Four range grass cultivars were planted in November 2005 and four forage *Kochia* cultivars were planted in December 2005.

Rangeland Pest Management:

A total of 53 presentations were delivered in this topic area. Two workshops and trainings were delivered in pesticide certification. Other workshops provided information on weeds and pests to homeowners, growers, ranchers, advisory boards, range and forestry professionals, agricultural chemical distributors, and state and federal public officials. One peer-reviewed publication, 5 extension publications, and 5 service publications were developed in this topic area.

Idaho Weed Coordinating Committee: Extension faculty participated in statewide summer legislative tours sponsored by Idaho Weed Control Association and provided background information for Noxious Weed Law modification.

Eurasian Watermilfoil Task Force: This is a task force of the Idaho Invasive Species Council. One charge to the task force was to identify susceptible waters of Idaho and to determine where Eurasian watermilfoil existed in the state. State representative Erik Anderson proposed legislation to provide funding for Eurasian watermilfoil control after attending a statewide legislator tour sponsored by the Idaho Weed Control Association.

Noxious weed education: Presentations were delivered statewide related to noxious weed education. Participants received information on weed awareness, using livestock for weed control, chemical weed control, weed identification, and roadside weed control. Master Gardener programs included classes on pesticide safety and weed management. Presentations were delivered at Fort Hall Indian Reservation Tribal Council regarding noxious weed problems and a weed management plan was developed.

7th Grade Science Day: Youth attended four workshops covering herbicide control and reseeding, biological control, grazing control, and identification and prevention. Hands-on workshops included: 1) an herbicide control/reseeding workshop where students had the opportunity to run a "seeder" and to apply "herbicide" with and without a surfactant, 2) a biological control workshop where students go on a bio-hunt for the larva of *Larinus minutus*, the biological control weevil of spotted knapweed, 3) an identification and prevention workshop where students played "Weed Jeopardy", and 4) a grazing control workshop where students interact with weed eating goats.

Pesticide Recertification Workshops: Pesticide recertification workshops and trainings for new applicators were conducted in the state. A recertification workshop served 86 participants and new applicator training had twelve participants pass the pesticide certification exam and another twelve received 6 recertification credits.

Adams Cooperative Weed Management Area (ACWMA): An advisory committee was formed to formalize and facilitate a voluntary, cooperative, working relationship between private landowners and local, state and federal agencies/land managers in order to share resources in the common effort to prevent, contain, control and/or eradicate noxious weeds in Adams County.

b. Program Outcomes

Grazing Management Practices:

Idaho Department of Lands Livestock Working Group: Developed alternative grazing management policies for use on state land grazing leases. Significant policy changes were enacted during the summer of 2006 in relation to conflicting leases and appraisal and compensation of range improvements on leases. New rules were adopted by the Land Board in the fall of 2006. The working group will continue and address issues related to calculation of the annual grazing lease rate and determination of whether the state's grazing program is profitable.

Multistate projects:

A cooperative multistate project dealing with wolf depredation issues was developed with several agencies and a pre-proposal submitted to NRI. Cooperators include USDA-ARS, Oregon State University, livestock producers and federal and state wolf management agencies and entities. The project was selected by NRI reviewers to develop a full proposal. A new multistate project dealing with sustainability and fragmentation of rangeland resources was recently approved as W192. This is a 5 year project and will depend upon external funding for completion.

The Joint Fire Science (SAGE-Steppe) project has moved to the point where alternative treatment packages are being applied to the ground in Nevada, Oregon, Idaho and Utah. Initial ranch budgets have been developed and are being used to develop multi-period models to estimate ranch-level impacts of alternative treatment and management strategies. Ranch-level models will be linked with regional economic models and address issues related to non-market aspects and environmental indicators of treatments.

Rangeland Pest Management:

The public awareness of weeds has increased through workshops, trainings, tours, presentations, newspaper articles and displays at county courthouses and fairs. Participants learned weed identification, bio-control methods, chemical selection, and chemical application timing and effectiveness. Private applicators who attended trainings received recertification credits and increased their knowledge of weeds and control treatments. Updates were made to the noxious weed bulletin 816

supplement for 2006, as were updates to two sections in the Pacific Northwest Weed Management Handbook. A Journal of Extension article was published detailing use of goats for spotted knapweed control.

Modifications to the noxious weed law were passed in the 2006 legislative session. The revisions allow for categorization of weeds according to the kinds of control action warranted so that new invading weeds are slated for eradication while well established weeds are controlled to prevent economic harm. The revisions encourage a proactive approach to weed control and help prevent new species from becoming well established and permanent residents of Idaho.

Eurasion Watermilfoil Task Force: A GIS database was compiled indicating current infestations and areas susceptible to invasion. Data was presented to the legislature detailing the scope of the problem with respect to Eurasian watermilfoil. Idaho legislators allocated $4 million for control. Nearly all waters infested with Eurasian watermilfoil were treated through our CWMA program.

Suppressing noxious weeds in the back country: The CWMA sponsored a weed day in the Pahsimeroi watershed, a cooperative effort between the FS, BLM and the Custer and Lemhi CWMA's. A total of over $16,000 worth of chemical and/or labor was provided. As a result, there is a substantial decrease in the weed problem in the valley. In addition, 17 landowners have developed cost-share contracts and have agreed to maintain an effective weed program for the next five years. Another successful project involved spraying a backcountry airstrip.

IPM Strategies: Ranchers and agency personnel learned the latest integrated weed management techniques for rangeland weed control and implemented IPM techniques to reduce pest problems. Ranchers and growers learned best management practices (BMPs) for irrigated pastures to increase forage production efficiency. GPS surveys were used in a property mapping program to protect the BLM lands from insect abatement spraying. The Fort Hall Reservation Tribal Council agreed to allow the development of weed spraying plots to address weed issues. Many producers seeking help to develop an Integrated Pest Management Program were given guidance so that they might qualify for more dollars under the Conservation Security Program.

c. Source of funds

Approximately $191,700 in federal grants were reported to this project. Other support included $104,207 from Smith-Lever 3(b&c); $218,018 from State appropriations for Agricultural Research and Extension; and $3,242 from County appropriations for University of Idaho Extension.

d. Scope

The Range program is most active in the southern two-thirds of Idaho. Multistate investment included 0.15 FTEs of faculty effort to support a wolf depredation project

(with Oregon State University), a joint fire science project with Nevada, Oregon and Utah, and a PNW weed management handbook (with Washington and Oregon).

Water Quality Topic Team

a. Inputs and Outputs

Six University of Idaho extension personnel reported to this project for a total of 1.12 FTEs. Educational presentations were made at 24 workshops and classes and 17 seminars and conferences reaching 1,265 learners. Faculty reported 32 extension publications including one peer-reviewed journal article and seven industry and service publications

Water Education:

Regional Groundwater Research and Extension Conference: A four-state committee planned and held a two-day regional research and extension conference in November 2005 titled "Groundwater Under the Pacific Northwest." A total of 220 attendees participated in the two-day event that was designed to: (1) provide participants with a holistic understanding of the current science, policy, and management of PNW groundwater resources; (2) strengthen connections between research, extension, regulatory, and technical assistance groups; and (3) identify critical research and information needs required for successful groundwater management.

2006 Satellite Conference: The fifth annual watershed theme-based satellite conference was held in October 2006. The conference theme "Stormwater Management from a Watershed Perspective - Extreme Western Climates" originated from grass roots steering committees. This satellite conference chronicled stormwater issues in Tucson, Arizona and Anchorage, Alaska.

Stormwater Resource Directory: A regional expertise directory was developed for the local, state, regional and federal partners in the stormwater national water quality theme area. It contains contact information for research and/or extension professionals at the land grant universities in Alaska, Idaho, Oregon and Washington.

Regional Agent Training: A two day-training workshop for county faculty in Alaska, Idaho, Oregon and Washington was conducted in October 2006 in Moscow, Idaho. The workshop not only emphasized resources and funding opportunities but showed natural linkages between water quality programming and programming in the following areas: (1) integrated pest management, (2) sustainable agriculture, (3) animal waste management, and (4) urban/master gardeners.

Educate Our Leaders: Extension personnel educated leaders and partners about the LGU national water quality program. Educational presentations were delivered to the USDA-CSREES administrative team and Western Directors and the national EPA

agriculture team in Baltimore, MD.

Evaluation of PNWWATER UPDATES: Over 90 issues of our regional update, PNWWATER UPDATE have been distributed. Fifty-seven policy makers (congressional delegation, state legislators) took part in an evaluation of our updates. This evaluation was published in the October 2006 issue of the Journal of Extension.

Post mineralization and fertilizer studies: A cooperative project with UI Extension personnel and sugar beet, potato and small grain growers to determine the release and timing of nitrogen and fertilizer efficacy for profitable crop production and crop quality was conducted. Field tours and presentations were delivered to 170 participants including growers, field men, students, DEQ scientists, university scientists, and industry and governmental agency personnel.

Pest Management: Idaho extension personnel delivered pesticide and pest management information relating to water quality issues throughout Idaho and on a regional and national scale. Three state level committees, all CSREES 406 programs with a pesticide/water quality emphasis, include the Pacific Northwest Pest Management Workgroup, Western IPM Center, and the PNW Water Quality team. The committees met jointly to discuss collaboration of 406 programs. Results from that meeting include: 1) investigated a future meeting to select a joint IPM/water quality project for the PNW region and pursue regional funding, and 2) developed a workshop for regional county educators to provide technical training and a forum for multistate networking among educators. Funds were obtained from the Western IPM Center to hold a joint meeting in November, 2006.

Watershed Assessment:

OnePlan IPM Planning Team: Produced a draft IPM matrix for potatoes and small grains that will be converted to the OnePlan website format and utilized as the early phase IPM planning tool. The team is coordinating with the OnePlan Steering Committee and NRCS to ensure that the planning meets the criteria for NRCS Farm Bill programs, such as EQIP and the Conservation Security Program. The Team met with colleagues from the University of California Davis and NRCS to collaborate on project design, resources and water quality planning tools.

OnePlan Training: Training materials were developed and presentations delivered to support the Idaho OnePlan certification program in the areas of nutrient cycling, fertilizer recommendations and soil sampling. Cooperators included the USDA-NRCS, Idaho Association of Soil Conservation Districts and the Idaho Department of Agriculture.

Fertilizer Guideline Updates: In support of the nutrient management plan portion of the Idaho OnePlan, three northern Idaho fertilizer guides were revised and a new fertilizer guide was developed for oats in northern Idaho. The new oat fertilizer guide allows more growers in northern Idaho to take part in USDA farm programs.

Drinking Water:

Safe Drinking Water Campaign: The five LGUs in the Pacific Northwest initiated a safe drinking water campaign. The goal of this campaign is to develop and distribute educational materials about four drinking water contaminants each year to clientele in the region. The first contaminant covered in this campaign was iron. We developed a PNW bulletin about iron in drinking water and highlighted iron in a PNWWATER UPDATE.

Irrigation Management: Five presentations on irrigation management were delivered at grower meetings, training sessions, and Water Quality Fairs and approximately 291 growers and landowners were educated on irrigation Best Management Practices. Irrigation Scheduling Demonstration plots were continued in 2006 on onion, sugarbeet, alfalfa, and pear crops. A Sugarbeet Irrigation CIS publication was prepared for UI editor review, and an Onion Irrigation CIS publication reached draft form.

b. Program Outcomes

Water Education:

Evaluation of PNWWATER UPDATES: Based on water program evaluations, Idaho politicians are better informed about water programs at land grant institutions and are using information provided by programs to make policy decisions. Citizens are better informed about stormwater issues in the western USA.

Post mineralization and fertilizer studies: Growers in Elmore, Owyhee, Eastern Ada, and some other counties in the state and region have been adapting new information provided by post mineralization and fertilizer studies. Growers report savings averaging 110 pounds N per acre, which correlates with our applied research findings.

Irrigation Demonstration Plots: Demonstrations using moisture sensors and monitors continued on several crops including alfalfa, pear, wheat, and onions. Growers using soil moisture sensors realized new efficiencies in irrigation strategies and consequently gained higher crop yields while saving on costs associated with irrigation power and labor.

c. Source of funds

Faculty obtained $383,325 in grant funds for water quality projects. Federal support included $43,163 in Smith-Lever 3(b&c) funds, $90,304 was derived from State appropriations for Agricultural Research and Extension, and $1,343 came from County appropriations for University Extension.

d. Scope

Only a portion of Idaho Extension's water quality effort is described in this section. Other elements are described in numerous topic areas. A significant part of the program described here (0.47 FTEs) includes Idaho's participation in the Pacific

Northwest Water Quality Team (with Oregon, Alaska, and Washington) that results in numerous educational events, publications, and research and development activities. The PNW Team also delivers programs used by stakeholders throughout the West.

GOAL 5: ENHANCED ECONOMIC OPPORTUNITY AND QUALITY OF LIFE FOR AMERICANS.

Overview

a. Outputs:

University of Idaho Extension faculty devoted 55.17 FTEs of activity in projects related to enhancing economic opportunities for Idahoans. Extension faculty produced three journal articles, 30 abstracts and proceedings, 22 newly developed curriculums, 72 extension publications, and 165 industry and popular press articles. Educational presentations included 862 workshops, classes and short-courses, 31 field days, 26 posters, and 226 other educational presentations. In total, faculty and staff reached a total of 39,833 teaching contacts.

b. Outcomes:

Family life education programs helped parents to be more informed of their child's growth and development and helped couples to become more aware of problem sources in their relationships. Idaho's extension programs enrich youth with diverse programming including science and technology, natural resources, agriculture, and government. Increasing numbers of Idaho youth are acquiring important life skills, through 4-H clubs, camps, and after school programs. Idaho residents who participate in Extension programming are more aware of identity theft, long term care and retirement, and youth have strengthened their financial literacy.

Participants in Extension diversity programs have developed successful strategies to address diversity challenges and are more sensitive to issues of cultural diversity. Idaho communities participating in the Horizons Leadership program have developed leadership roles and existing leaders have improved leadership skills. Idaho communities have access to new information, have acquired new infrastructure, have created new development plans and strategies, and have committed to better training of citizens and volunteers to help achieve community goals. Businesses have new customer relations knowledge and skills and new business management tools that they are using to improve their enterprises.

c. Impacts:

Past participants in Extension's entrepreneurship development program report that since 2002, seven full-time and 16 part-time jobs have been created, 60 percent continue to operate or have expanded their business, 67 percent reported a change in business practices as a result of taking the course.

d. Accomplishments:

Extension accomplishments in Goal 5 projects are evaluated by comparing planned outputs to actual outputs reported as performance measures. Planned outputs for Goal 5 were as follows.

	Number Planned	Number achieved
Face-to-face teaching contacts	46,765	39,860
Schools and Workshops	153	236
Extension-type publications	93	89
Journal articles, proceedings and abstracts	10	18
New curricula developed	n/a	20

The number of contacts for Goal 5 Topic Teams was overestimated, largely because of a faulty forecast for the 4-H Youth Development team. Other predictions were more accurate predictors of actual outputs. Because this is the first year for this organization to compare targets with actual outputs, there is insufficient data to determine success. As the Topic Teams gain experience with establishing output targets, accuracy is expected to improve.

4-H and Youth Development Topic Team

a. Inputs and Outputs

A total of 36.79 FTEs were invested from 86 UI Extension personnel to the 4-H and Youth Development topic team. Faculty delivered educational information and materials related to youth development at over 620 classes and workshops, 21 conference presentations, 30 field days, 85 seminars and meetings, and 14 poster sessions. More than 20 new educational presentations and curricula were developed, 13 extension publications and two peer-reviewed journal articles were written, and program information was delivered to the public in nine popular press and 75 service articles. The total number of individual contacts reported by faculty related to 4-H and youth development was 27,980.

Strengthening Family and Communities through 4-H Youth Development:

County Fairs: UI Extension personnel helped to oversee 4-H projects at the county fairs and worked closely with the fair board and extension office staff to exhibit 4-H projects and supervise 4-H events such as the livestock show and sale, horse show, working ranch horse show, style review, and demonstration contest.

4-H Camps: Numerous camps are organized to offer youth a learning environment outside the traditional classroom. In 2006, 4-H youth attended many camps including *4-H Summer Camp, 4-H Adventure Camp, 4-H Livestock Day Camp, Alpine 4-H Camp*, *Sewing Day Camp, Winter Camp*, *Horsen' Around Camp, Entomology Day Camp, 4-H Lamb Camp, Wildlife Camp*, and a *Fishing Day Camp.*

4-H Market Livestock Budgets: Extension educators are developing livestock budgets for market steers, lambs, and hogs. The budgets can be used by 4-H youth, leaders, and parents to make planning and monitoring decisions. The goal is to create a tool to teach youth and leaders budgeting and planning skills.

Career Fairs: Extension educators worked with local leadership organizations and school districts to organize a career fair for high school students. Approximately 430 students participated in three sessions of their choice. Students were given a pre-survey to determine in which professions they had greatest interest. From this survey, more than 75 local professionals were invited, representing various fields matching the interests of the students. The goal was to help students gain a broader understanding of their career options and encourage them to set goals to obtain the training and education they need. A post-survey was completed by each student to determine the effectiveness of the experience.

Idaho 4-H Ambassador Training Program offers youth the opportunity to represent the local 4-H organization and to develop leadership, communication and team skills. They receive training in public speaking, leadership development, working in teams and fundraising. Last year, more than 85 youth and 15 adults participated in the training. One particular objective of the training is for youth to gain the skills to communicate the impact that 4-H has had on their lives to stakeholders. All 85 youth gave a three minute speech sharing the impact of 4-H on their lives.

4-H After-School Programs: Several school districts throughout Idaho are using 4-H curricula in after-school programming. UI Extension took the lead in developing and implementing *Explore 4-H Afterschool Fun*, a Friday program for schools with a 4-day school week where youth have the opportunity to attend a day camp full of enrichment activities, homework help, physical activity and more. Youth participate in a number of experiential, educational activities including entomology, pottery, art and technology, fitness education, and nutrition. In addition to these activities, the program also incorporates community service projects. More that 3,150 youth participated in *4-H Afterschool* programs in 16 counties.

Other Programs: *Jump into Spring* is offered annually during spring break to provide youth with a series of appealing and engaging activities on a variety of topics. In 2006, participation increased from 2005 and included some new audiences including home schooled families and special needs youth. Between 50 and 60 children participated in each of the 17 classes presented during the week.

Junior Master Gardener Program is a youth gardening program that offers youth gardening education through fun activities and hands-on experience. *At Home on the Range* is a curriculum that offers youth the opportunity to learn more about rangeland ecosystems. Over half of Idaho is classified as rangeland so students are given an opportunity to learn more about the land and its resources. Idaho Rangeland Resource Commission provided each of the 16 participants with a free project book and a backpack guide to Idaho's range plants.

Healthy Lifestyle Program:

Grants, community collaboration, and trained volunteers are assisting Educators as they work to meet the goals of educating and enhancing learning about living a healthy lifestyle through the use of research-based curricula and hands-on learning activities. Educators and volunteers share ideas and successes through publications, poster sessions and exhibits, journal articles and impact statements.

Increasing Youth and Adult Partnerships:

Youth and adult partnerships are an essential element of positive community and youth development. UI Extension educators, coordinators, assistants and volunteers worked to provide education, training and opportunities to youth and adults to create more effective youth-adult partnerships. Extension programs are increasing the number and effectiveness of youth-adult partnerships by providing more opportunities for collaboration in local communities.

Extension faculty obtained a $25,000 grant to promote youth and adult partnerships in rural communities, with the help of a youth delegate who served on the planning team. Youth and adults were trained in knowledge of Youth/Adult Partnerships, issues discovery, meeting facilitation skills, action planning, and community forum development. The trained youth and adults planned and conducted community forums in each community. The forums focused on local youth issues and concerns. The communities will continue to address the identified issues next year through the second phase of grant funding.

Know your Government Conference: The 2006 conference was attended by 173 youth and 40 adults. 4-H members learned about State Government by observing the legislative and judicial processes and by meeting state officials. Participants received a copy of the Idaho Blue Book from the Secretary of the State's office. Delegates were given a pre- and post-test to assess learning.

Idaho 4-H Teen Conference: This week-long youth development conference held on the University of Idaho main campus was attended by 184 youth. Both the planning process and the conference itself are designed to give youth real-life opportunities to develop socially and emotionally, and to develop practical life skills.

Twelve youth and two adults attended *National 4-H Congress* in Atlanta, Georgia. They participated in workshops, tours, cultural activities, and community service projects. One youth was selected to serve on the 2007 National 4-H Congress

Design Team. Extension educators have been working with a group of teens and adults who participated in the National 4-H Conference to engage younger teens and prolong their membership in 4-H programs. A junior high retreat was held in October 2006.

Reaching Underserved Audiences:

Idaho Extension faculty offer programs to underserved youth in low-income communities to help develop life skills, leadership skills and to increase time spent with caring adults. The Hispanic population has reached almost ten percent in Idaho. However, the Hispanic youth population in the typical 4-H age-range is almost 25 percent of total youth in the state of Idaho. Hispanic youth in Idaho are traditionally underserved by 4-H Youth Development programs, as are Native American youth. Nearly 17 percent of Idaho's youth live in poverty and many of these youth are also underserved by 4-H Youth Development programs. 4-H clubs have been the mainstay for youth development programs; however, educators, coordinators, and volunteers have expanded delivery to reach Idaho's underserved youth. The Idaho 4-H Endowment Board provided $5,000 to help support programs to reach underserved audiences.

In the past two years there has been a 60 percent increase in the number of Hispanic youth participating in 4-H Youth Development programs. Idaho 4-H has established a *Diversity Task Force* and has been working to develop culturally appropriate recruitment materials and program delivery methods to better serve Hispanic youth and their families. In order to attract more Hispanic youth and volunteers to the Idaho 4-H Youth Development Program, we are implementing a program called "Developing Cultural Competencies."

¡Qué Rico! La Cultura, a Latino Cultural Arts 4-H curriculum, was published in late 2005. The curriculum was delivered in after school and summer programs in Ada, Canyon, and Washington Counties. A statewide committee continues to develop a library of tools to use for diversity training. The committee received a small grant to purchase high-quality materials for use in the program.

Junior Master Gardener (JMG) Latino: With the support of a UI Urban Expansion grant, Extension expanded the JMG program to better serve the Hispanic community. Volunteers from the Americorps Vista program are working to develop and implement the program.

4-H Camp: Each year 4-H camp is promoted to non-traditional youth in Idaho communities. Camp counselors are also solicited from non-traditional 4-H families. Members and counselors are enrolled in 4-H and complete a project at camp. An evaluation is developed, with each camper and counselor completing the evaluation. All of the campers and counselors who participated in 4-H Camp completed a 4-H project and exhibited at the fair.

Science and Technology Education and Enhancement:

Educators presented classes on wildlife habitat as part of a natural resource-based curriculum and demonstrated insect collecting techniques to youth at three workshops. Faculty reported five workshops on building rockets for 4-H projects.

A number of trainings were conducted in geospatial technologies. At the 4-H State Leaders' Forum, a 2-hour workshop was conducted to introduce 4-H Extension educators and coordinators to geospatial technologies and programs. Attendees learned to use GPS, computer mapping technologies, and programming ideas (CCS curriculum, community mapping, geo-caching). Trainings took place at Teen Conference and UI Ag Days to introduce youth to GPS and GIS technologies. Silverwood Physics Days offered youth from around the Northwest the opportunity to use this theme park site to explore scientific phenomena. Throughout the two days, youth were trained to use GPS units and then allowed to check out the units for 30 minutes. When they returned, they learned how to transfer their waypoints and tracks onto a satellite image of the park.

UI Extension has initiated a *GPS lending program* to allow county 4-H educators and coordinators the ability to develop GPS activities in their programs. After initial training of leaders and youth, the units are shipped to 4-H programs around the state for GPS Days, county fairs, etc.

4-H CCS Curricula: 4-H CCS produced and recently released a new curriculum for 4-H Clubs. The new curriculum, *Exploring Spaces, Going Places*, provides a structured set of activities for youth to learn about geospatial subjects. Specialists are working with educators and 4-H coordinators to train volunteers in this program.

Volunteer Development and Leadership:

Volunteerism is fundamental to delivering quality programs in 4-H youth development. To have an adequate number of well-prepared volunteers, it is necessary to recruit, train and support volunteers, both youth and adult, on an on-going basis. UI Extension faculty work closely with the Idaho 4-H Leaders Association to support the involvement of volunteers in the Idaho 4-H Youth Development Program. Volunteer recruiting tools, such as posters and flyers, bring in new 4-H leaders. Volunteer trainings and resource materials provide information on child protection, 4-H policies, and leader expectations. A leaders training series was offered to more than 30 volunteers at the 2006 Idaho 4-H Leaders Forum.

Sharing Strategies for Success: Several Pacific Northwest states came together to form a planning committee focused on *Sharing Strategies for Success*. The program consisted of poster sessions, seminars, focus group sessions, and plenary sessions. The conference was held in Boise, Idaho in May 2006. The conference was well attended with a wide representation of Extension, 4-H, and Family and Consumer Science faculty and staff. Of the 103 registrants, 37 were from Idaho representing 23 counties, 49 were from Oregon representing 28 counties, and 17 were from Washington representing 12 counties.

Intermountain Livestock Judges Training: A total of nine livestock judging classes and were offered to 121 adults. UI Extension educators prepared training materials and worked with livestock producers to host the live animal teaching classes. Research shows that livestock judging participants are more decisive, have better public speaking and communication skills, and increase their livestock knowledge and terminology.

Volunteer Retention study: As a joint study between Idaho and Wyoming, this study was completed in 2006 with 274 4-H volunteers completing the survey. Survey results will be summarized and reported in the coming months. A DVD was developed on the responsibility to report child abuse and neglect. This was a collaborative project with the Governor's task force on Children at Risk. The DVD has been distributed to all county extension offices, health and welfare offices and public and private schools.

Multistate leadership programs: These continue to be offered jointly between Idaho's five panhandle counties and Washington's seven northeastern counties (HUB). This joint 4-H leadership program coordinates personnel and financial resources to increase interaction and growth among youth and adults and enhance the quality of educational opportunities. Youth leadership development is essential to building leaders for today and guiding citizens in their efforts to lead positive change in their communities in the future. The UI, along with the Idaho Association of Soil Conservation Districts and the NRCS, sponsor a Natural Resources Workshop for youth (ages 12 to 14). One of the goals of the camp is to develop leadership potential in the youth who return as cabin leaders. A program was developed to train and evaluate the cabin leaders on a yearly basis to work with youth and develop the appropriate curriculum materials, as well as create evaluative tools necessary to measure outcomes.

Reflections on Extension Leadership: This unique professional development program sponsored by Epsilon Sigma Phi helped build, enhance, and expand the leadership capacities of Extension professionals. The program was delivered via webcast with 12 panelists. UI Extension faculty participated on the panel.

b. Program Outcomes

Strengthening Family and Communities through 4-H Youth Development:

Numbers of youth participating in 4-H after-school programs increased in 2006 indicating that more youth are learning about topics delivered through 4-H after-school programming. Numbers of youth participating in camps continues to increase statewide. Reported post-test scores from day camps show a 21 percent increase in knowledge following camp activities. Numbers of youth participating in leadership programs increased, indicating more youth involvement in communities.

Increasing Youth and Adult Partnerships:

Know your Government Conference: Results of the post-test show that delegates

learned a great deal during the program, with repeat attendees showing a greater improvement than the first year delegates. The latter result indicates that delegates retained the knowledge they had gained the first year. Results of an attitude survey showed that delegates became more positive towards government. At the end of the conference, the 151 delegates were challenged to return home and share what they had done with others in their communities.

Idaho 4-H Teen Conference: The conference was evaluated to determine the effectiveness of the various workshops offered at the conference. Several qualitative questions were asked to help the committee with planning for future years. In general, Idaho 4-H Teen Conference rates very high on questions assessing short-, medium-, and long-term outcomes. All week-long workshop tracks continue to be scored between 3 and 5 on a Likert-type scale, indicating both learning and satisfaction. When asked what they would bring back to their communities, participants referred to life skills including leadership, teamwork, and social skills.

The *Junior High Retreat* was very well received by the sixth and seventh graders who attended. From a pre-post survey assessing outcomes, most youth reported that the retreat increased their likelihood of enrolling in 4-H, got them excited about 4-H, introduced them to new friends in 4-H, and introduced them to new 4-H projects.

Reaching Underserved Audiences:

4-H Camp: An evaluation was completed by all of the campers. Eighty-nine percent indicated the camping experience was very good or great and 83 percent indicated that attending camp gave them the opportunity to become more responsible. The percentage of campers for whom 4-H camp was their only 4-H contact during the year decreased by 10 percent; indicating that more youth are involved in other project areas. The percentage of teen counselors reporting 4-H camp as their only 4-H contact during the year increased from 34 percent to 57 percent from 2005 to 2006.

Science and Technology Education and Enhancement:

The effectiveness of geospatial technology trainings was evaluated with a 6-month follow-up survey. All participants agreed that they had increased their knowledge of GPS, and Extension personnel who participated in trainings responded that they had since offered a 4-H event related to GIS and/or GPS. Programs reached more than 100 youth in clubs, teen groups, and special events and camps.

Volunteer Development and Leadership:

Sharing Strategies for Success Conference: A survey measured the value of the sessions and the conference, and generated feedback for improving the conference. The overall satisfaction with the content averaged 4 on a 5 point scale. This conference improved opportunities for more effective multistate programming. Faculty and staff have networked and shared information and expertise. The conference was well received and participants have encouraged leadership within

each state to form another planning committee for the next PNW Professional Development conference.

Intermountain Livestock Judges Training: Participant interviews indicate that attendees had more confidence in their ability to evaluate livestock and to express their observations to youth and adult audiences. Of the 32 participants, all strongly agreed that the training was useful and intended to apply their newly-acquired skills. Seventy percent of the participants indicated this training is needed bi-annually. Six of the participants judged county fairs during the year and used the skills gained from the training when judging at the fair.

Reflections on Extension Leadership: With a nearly 50 percent response ratio on the evaluation, 96 percent said this program provided a good background on leadership, all were pleased that they took the time to participate in this web cast, and 73 percent agreed that the major issues of Extension leadership were addressed through this program.

Multistate leadership programs: The Panhandle 4-H Team has been very successful in developing consistent 4-H organizational management policies and procedures (enrollment, curriculum, leader training, exhibit requirements, etc.) These have been manifested in the development and distribution of the *Panhandle 4-H Operations Handbook* and the *Panhandle 4-H Leader Guide* within the five northern counties of Idaho. A *New 4-H Family Handbook* has also been developed to provide educational resources for new families entering into 4-H. This handbook has been well received throughout the state.

c. Source of Funds

Grant funds obtained by UI Extension totaled $405,506 and included state, federal, and private funds. Federal investment also included $315,748 from Smith-Lever 3(b&c) accounts; $583,183 in support came from county appropriations for University of Idaho Extension; and State appropriations for Agricultural Research and Extension contributed another $1,550,388 for 4-H Youth Development activities.

d. Scope

The majority of the 4-H and youth development Extension programs are offered locally throughout the state. Faculty reported 1.96 FTEs invested in multistate partnerships with faculty from surrounding states including Wyoming, Utah, Washington, and Oregon. Notable multistate projects described above include: *Sharing Strategies for Success* (with OR and WA)*, Intermountain Livestock Judging Training* (WY and UT)*, HUB Multistate Leader Training* (WA)*,* and the *Volunteer Retention Study* (with WY).

Civil Society Topic Team

a. Inputs and Outputs

Five UI Faculty members contributed a total of 0.64 FTEs. Personnel delivered eight workshops and classes, three posters and two educational tours. Educational publications include three extension publications and four service articles. Civil society information and educational resources were delivered to 346 learners.

Idaho's Journey for Diversity and Human Rights:

Idaho's Journey for Diversity and Human Rights is a hands-on learning experience exploring the roots of diversity in Idaho. Through this program, participants from around the state learn about the histories of Idaho's constituent groups and prepare for a more diverse and inclusive future. The spring 2006 course focused on the issues and events of eastern Idaho. A UI Extension faculty member contributed a professional article on the program for publication in the Journal of Extension.

Manner Mishaps:

Manner Mishaps was taught eight times this year to 153 high school students. The students were given a pre- and post-test. A PowerPoint presentation, the video *Etiquette Hotline*, and a game (similar to Jeopardy) were used to teach the information. Four *Mind Your Manners* articles were published in county newsletters.

b. Program Outcomes

Idaho's Journey for Diversity and Human Rights:

Retrospective pre-test methodology measured the effectiveness of the program. Survey results showed that participants increased their knowledge of Idaho's past and present challenges of diversity and human rights and their knowledge of successful strategies to address such issues. They gained knowledge of how Idaho's history can address present day challenges and increased their capacity to speak up for diversity and human rights and their commitment to address such issues. Participants felt better connected to others in Idaho concerned about diversity and human rights.

Manner Mishaps:

The pre-test scores for the Manner Mishaps program was 64 percent and the post-test score was 96 percent during this year. When asked what they learned, 57 percent indicated they learned how to set the table, 68 percent learned how to use silverware, 32 percent learned how and when to use a napkin, and 31 percent indicated they learned basic manners. The majority of students (61%) strongly agreed or agreed (36%) that this information will be helpful to them in the future.

c. Source of funds

Faculty reported $11,000 in grant funds secured for the Idaho's Journey program. Smith-Lever 3(b&c) accounted for $10,549; State appropriations for Agricultural

Research and Extension accounted for $51,796; and county appropriations for University of Idaho Extension contributed $910 to the Civil Society program.

d. Scope

The scope of the civil society topic team is in-state extension.

Community Development Topic Team

a. Inputs and Outputs

University of Idaho Extension invested time and effort of 19 individuals to the Community Development team, contributing a total of 6.7 FTEs. Faculty reported the delivery of 50 educational presentations including workshops and classes, and 27 seminar presentations including invited talks and conference presentations; reaching nearly 2,200 learners. Faculty reported 10 extension publications in this topic area.

Business and Community Entrepreneurship:

Economic development training for Extension Educators prepared them to help business and community entrepreneurs conduct economic viability analyses of planned projects. Presentations on the feasibility of economic development projects were delivered at the National Association of Community Development Extension Professionals (NACDEP) meeting and the Western Regional Extension Economic Development Training Workshop.

Short courses were offered to help small business owners learn the basics of small business management. Topics include the importance of developing a business plan, financing a business, retirement and health plans, planning and research, management, legal structures, marketing, cash flow and budget analysis, interpreting financial statements, ratio analysis, and financing strategies.

A series of basic computer workshops were offered covering topics such as introduction to computers, basic typing, and commonly used programs. The majority of participants were Hispanic and an interpreter was provided by the Migrant Council.

UI Extension personnel worked with local community development organizations to assess local business needs and assisted local business owners with business plan development and obtaining financing for business expansion.

Customer Relations:

Gold Standard Customer Relations program is a two-hour workshop where participants learn the fundamentals of outstanding customer service. The program was conducted on 16 occasions with a total of 395 participants.

Data Tools for Understanding Communities:

County at a Glance brochures highlight the economic trends and changes which are

occurring in Idaho counties. The brochure spotlights population growth, employment, housing, Hispanic population, income and social trends such as education, unemployment, poverty, and crime. In just a few minutes, readers can understand the general economic and demographic circumstances of Idaho counties.

Leadership Development and Civic Engagement:

Energy Use and Conservation Information Service: Local officials gain knowledge related to energy use and conservation in the Pacific Northwest.

Leadership Teton Valley, and *Leadership Jackson Hole/ Lincoln Leadership Institute* are regionally specific programs designed to foster the development of leadership skills and abilities and provide an understanding of community resources and issues. Thirty-four participants graduated from the programs.

EVOLVE training: In cooperation with the University of Wyoming, the UI Community Development team offered an EVOLVE training in Jackson, Wyoming. Twelve educators throughout Idaho and one from California completed the training. Two other Idaho counties have now created steering committees and will begin leadership programs in their counties.

Horizons Project: Residents from Idaho communities were recruited to participate in a community development program sponsored by the Northwest Area Foundation. The long-term goal of Horizons is to build strong community leadership with the purpose to better understand and alleviate poverty. Twenty-three communities formed 14 Horizons Community Teams across northern Idaho. Poverty rates in Horizons communities range from 11 to 26 percent.

Wildland and Urban Interface:

A two-day Wildland Urban Interface conference was attended by approximately 116 people. The conference addressed a variety of issues surrounding the WUI zone including, fire, climate, GPS, and land use issues.

Other Projects:

Salmon Valley Stewardship: Outputs included the development of a “service contracting workshop" and organization of community planning round tables.

b. Program Outcomes

Business and Community Entrepreneurship:

Fifteen Idaho Extension Educators have in-depth training and materials for an economic development program, including assistance for entrepreneurs that they can deliver in their counties and communities. Eighty-four Extension Professionals from other states received more abbreviated, but similar training. About 25 of the 40 persons at the national Extension community development training indicated they were comfortable using tools received to work with business and community entrepreneurs. Participants in the Business Plan short courses reported an increase

in their knowledge of writing a basic business plan.

Participants in the Entrepreneurship program are surveyed immediately and at 6-12-24- and 36-months after completing the course. Since 2002, seven full-time and 16 part-time jobs have been created by program participants, 60 percent continue to operate or have expanded their business, 67 percent reported a change in business practices as a result of taking the course, and 96 percent stated that they would recommend the course to other people in business.

As a result of one-on-one training provided by UI Extension personnel, a small business owner was approved for a several hundred thousand dollar SBA-backed loan to purchase a building and expand her business, creating 10 new local jobs.

Customer Relations:

Gold Standard Customer Relations: Using a retrospective pre-test, all participants have recorded that they increased their knowledge of the characteristics of outstanding service, would highly recommend the program to others, and understand the importance of making a positive impression on clients. Results and experiences of the UI Gold Standard program have been presented via poster displays, workshops, and impact statements. Continued requests for more presentations to area businesses indicate program success. Many local businesses would like to see this program in local high schools to offer student participants a customer relations certificate recognized by local businesses.

Data Tools for Understanding Communities:

County at a Glance brochures were developed for 44 counties in Idaho and distributed to community members, local businesses, chambers of commerce, and governmental agencies. Each county received a binder which included information and points for using demographic and census data in your community. The binders also included a CD with all 44 brochures and a PowerPoint presentation. Brochures were introduced at county presentations throughout Idaho. A retrospective pre/post test was given at each county presentation and participants reported they did increase their knowledge about local data, where to find it, and understand the information presented. County elected officials reported using the materials in a follow-up survey and dozens of people have requested technical assistance locating statistics. Local agencies reported using the information to assist in project development and grant writing.

Housing Affordability in Idaho: UI extension personnel have developed a housing affordability index for Idaho counties. Data on “entry level” housing prices in key communities/cities throughout the state has also been collected. This data is useful for new residents.

Leadership Development and Civic Engagement:

Horizons Project: Four of the five communities participating in phase 1 of the Horizons Leadership program demonstrated changes in community leadership

activity, with emerging leaders taking on new roles in their communities, existing leaders learning more leadership skills and new community organizations created by participants to sustain community development efforts. Eight participants in the phase 1 Horizons programs ran for elected office, with four successfully winning their bids. New partnerships and projects resulted in community beautification, youth programs, transportation service from rural communities to regional service centers, and collaborative initiatives among Tribal and non-Tribal governments.

EVOLVE training: This regional leadership development training introduced educators in the western states to the EVOLVE program. The community development topic team was granted $5,000 to deliver EVOLVE training to 14 Idaho educators.

Wildland and Urban Interface:

Participants demonstrated knowledge gain in several topic areas including: WUI "Eco-literacy", Fire & Climate Change, Sense of Place, Natural Resource Leadership, WUI Fire Risk Reduction, GPS, Fire/Disaster Preparedness, Land Use Planning, Property Rights/Eminent Domain, Building Sustainable Communities, WUI Geospatial Applications, and Other. Overall, knowledge gain increased by an average of 14 percent.

Other Projects:

Salmon Valley Stewardship: Under the guidance of the executive director and outside experts, the board of directors has been through trainings to develop the mission statement, core services, employee manual, tax identification number, fund raising and board of directors training. Outcomes for 2006 include the development of the board of directors' by-laws and obtaining status as an independent organization.

c. Source of funds

Faculty reported private, state, and federal grant funds of over $270,000. Smith-Lever 3(b&c) funds contributed $83,636 to community development projects, $410,668 was invested from State appropriations for Agricultural Research and Extension, and county appropriations contributed $7,211.

d. Scope

Community development Extension programs were centered in several local and regional communities. Community Development educators invested 0.24 FTEs in multistate activities including several partnerships with Wyoming that allowed for collaborative delivery of leadership programming, and participation in regional and national professional development activities.

Family Economics Topic Team

a. Inputs and Outputs

Fifteen faculty members from UI Extension reported Family Economics topic activities, contributing a total of 5.85 FTEs. Educational and outreach materials reached 7,405 individuals through 146 classes and workshops, 25 educational seminars and eight posters. Faculty reported six Extension publications, one journal article, two curricula, 35 popular press articles, and 16 abstracts and proceedings.

Basic Financial Management Education:

Outreach and educational presentations and materials covered several financial management education topics including: identity theft, long-term care for seniors, credit basics, tracking expenses, and making spending and savings plans. Information delivered in 36 classes and workshops and 11 seminars reached 1,667 individuals.

Dollar Decision$: This curriculum provided clientele with information about expense tracking and budgeting and 407 participants were enrolled in the program in 2006. *Dollar Decision$ en Español* was created to provide financial management education resources to Spanish-speaking audiences. Brochures with product information were shared with Extension colleagues at the annual conference of the National Association of Family and Consumer Sciences.

Credit Cents: A new curriculum was recently developed by UI Extension faculty to offer training that covers the various kinds of consumer credit, reasonable levels of debt, credit reports and scores, building credit history, finding the right loans or credit cards, getting out of debt, and bankruptcy in Idaho. This year 49 individuals participated in the training.

Guarding Against Identity Theft: This curriculum, previously developed by UI Extension personnel, was taught to over 200 city employees, county employees, state employees, clubs, and senior centers in 2006.

Financial Security:

Outreach materials and information on financial security topics were distributed on topics including: retirement planning, investing, planning for long-term care, organizing important papers, advanced directives and estate planning topics, and understanding Social Security and Medicare programs. Twenty-four classes and workshops and 14 educational seminars were presented to 2,393 people.

Long-term care: Long-term care workshops were delivered to over 1,383 participants in cooperation with AARP-Idaho. Our partnership with AARP-Idaho and co-sponsors provided over $44,000 of in-kind funding and enabled Extension to recruit large workshop audiences. Faculty invested time to develop promotional brochures and program marketing strategies.

In Partnership with Idaho Department of Insurance, Boundary Regional Community Health Center, Panhandle Health District, Idaho Department of Health and Welfare, UI Extension offered one-on-one education to 460 Medicare beneficiaries, family members and caregivers.

Secure Your Future: Financial Literacy Coalitions teamed with community organizations and UI Extension to fill an unmet need for unbiased, low-cost education on the important legal issues associated with later life. Seven workshops titled *Legally Secure Your Financial Future: Organize, Communicate, Prepare (LSYFF)* were offered to guide participants through an evaluation of their important documents and legal affairs. More than 650 people attended the workshops.

Secure Your Retirement: A three-class series targeting adults ages 25 and older to help individuals plan for retirement and learn more about social security and investing to meet retirement saving goals.

Youth Financial Literacy:

Extension education was delivered through public schools to teach youth about: 1) financial decision making, 2) money management and consumer skills, 3) employability skills, and 4) how education levels impact employment opportunities and income.

Welcome to the Real World: WTRW is an active, hands-on experience that gives teens a chance to explore career opportunities and make lifestyle and budget choices similar to those faced by adults on a daily basis. Eighty-one sessions of this program were offered to 1,846 high school students.

Money Cents: This workshop was developed in cooperation with the Idaho Credit Union League to train teachers how to use National Endowment for Financial Education (NEFE) High School Financial Planning Program (HSFPP) in their classrooms. Workshops were offered to 41 Washington and Idaho teachers.

b. Program Outcomes

Basic Financial Management Education:

Dollar Decision$: All participants completed a retrospective evaluation which indicated knowledge gained and planned behavior changes. Planned behavior changes included: evaluating each purchase before spending the money, developing a spending plan and beginning a rainy day fund for emergencies.

Guarding Against Identity Theft: Participants completed a retrospective survey indicating a 67 percent increase in knowledge about identity theft; ability to determine whether they are victims increased by 83 percent, and knowledge of what to do if they become a victim of identity theft increased by 90 percent.

Financial Security:

Long-term Care Workshops: As a result of the long-term care workshops, 95 percent of participants increased their awareness of long-term care issues. Ninety-four percent agreed or strongly agreed they have increased knowledge of what long-term care insurance is and how it works.

Secure Your Future: Participants increased their knowledge of course topics and reported numerous actions taken as a result of attending the series. Surveys conducted 6-months after course completion showed that the portion of participants who had completed a living will and inventoried important documents increased by 57 percent. Additional frequently listed actions taken included getting financial affairs in order; completing written wills and medical and financial powers of attorney; meeting with financial professionals (attorneys or financial planners); updating beneficiary designations on life insurance and retirement accounts; making funeral and cemetery arrangements; tending to legal guardianship matters; and purchasing long term care insurance.

Secure Your Retirement: Ninety-five percent of participants reported that they gained new ideas to help them prepare for retirement. The Family Economics Topic Team plans to roll out a new retirement planning curriculum for Idaho in 2008 that will educate participants on increasing retirement savings and estimating savings to reach retirement goals.

Youth Financial Literacy:

Welcome to the Real World: Idaho youth increased their personal finance skills as a result of this class. All participants stated that they increased their knowledge about credit, preparing a spending plan, and maintaining a checking account. Teens also indicated that they learned about exploring career possibilities.

Money Cents: During the 2006-2007 school years, teachers who attended the Money Cents HSFPP workshop will be teaching all or some of the HSFPP to approximately 4,075 students throughout Idaho. Participants of the workshop also ordered 2,391 HSFPP student guides and eight HSFPP teacher manuals. Results from the workshop evaluation show that 93 percent of respondents increased their capacity to teach personal finance.

c. Source of Funds

More than $95,000 in federal, state, and private grant funds were invested in this topic area. Federal funding included $103,308 from Smith-Lever 3(b&c) accounts. State appropriations for Agricultural Research and Extension included $507,265 and county appropriations for University of Idaho Extension contributed another $8,908 to family economics programs

d. Scope

The scope of the family economics topic team is mostly in-state extension programming that serves local and regional communities. Faculty reported 1.09 FTEs in multistate investment including collaboration on the eXtension family

financial management unit and several workshops in partnership with Washington.

Family Life Education Topic Team

a. Inputs and Outputs

UI Extension had seven faculty members contribute 2.23 FTEs to this topic team. Publications included 11 articles in local newsletters and newspapers and one abstract. Faculty reported 11 classes and workshops, five seminars, one poster, and two conference presentations reaching 1,189 learners.

Parenting:

Parenting classes: A six-class series is offered to parents to help strengthen their knowledge of parenting techniques. Classes were also taught on topics related to parenting apart—helping parents to understand how to work together to support their children.

Parents as Teachers: This program is now in its fifth year. Last year 13,811 personal visits were made by program educators in more than 100 Idaho communities; 2,000 group meetings were held and 1,724 families were enrolled in PAT and 2,668 children were served (47% were low income). PAT reported that 2,120 children were screened for learning challenges. In 2006, the Idaho Parents as Teachers program received national recognition, gaining the Losos Prize for Excellence for the *Block Fest* demonstration project.

UI Extension faculty contributed three chapters to a national curriculum titled *The Parent Connection: Group Learning for Parents and Young Children*. This curriculum is marketed nationally and 150 copies were sold in the first two months.

Couple Relationships:

Married and Loving It!: This program was featured on a poster display at the National Council of Family Relations meeting and at the CYFAR Conference. A mini-training on *Married and Loving It!* will be conducted at the international *Smart Marriages Conference*. In 2006, this program reached 86 participants.

b. Program Outcomes

Parenting:

Parenting 101: Parents reported increased knowledge of their child's growth and development, increased ability to develop and use logical consequences for their child's behavior, and gained confidence in disciplining their child. Parents also reported enjoying the adult interaction, developing new relationships with other parents and building on previous relationships. The group secured a grant to continue Family Night events with three six-week sessions in the fall of 2006 and winter and spring of 2007.

Parents as Teachers: 76 percent of parents participating in the *PAT Block Fest* were able to recognize how building with blocks teaches children and 66 percent reported learning ways to support early math and science learning for their children. Three months following the event, 89 percent of participating parents reported that they regularly play with blocks with their children and 72 percent reported that they were able to identify ways to explore science and math through everyday activities.

Couple Relationships:

Married and Loving It: Follow-up interviews with participants reveal that many participants have incorporated the material into their daily lives. They have learned how to communicate more clearly, process their anger in a healthy manner, and manage their finances.

c. Source of Funds

The Family Life team reported $535,011 in federal, state, and private grants. Smith-Lever 3(b&c) funds contributed $18,183 toward family life education; county appropriations for University of Idaho Extension contributed $1,586; and State appropriations for Agricultural Research and Extension contributed $89,284 toward family life education.

d. Scope

The family life education topic team delivered educational programs in local communities statewide. Curriculum developed by faculty in family life education were marketed and sold nationally. Faculty reported 0.06 FTEs of effort for multistate activity, including collaborations for both the parenting and marriage education programs.

Farm and Ranch Management Topic Team

a. Inputs and Outputs

UI Extension faculty committed 2.96 FTEs of effort to help farmers and ranchers better manage their business enterprises. Their investment produced six scholarly publications and 70 various Extension publications and decision tools. Twenty-seven workshops and 59 presentations reached 740 learners with current and useful information about financial planning and decision-making, marketing, and enterprise budgeting. Several of the efforts were directly related to multistate activities.

Development of Farm Management Resources:

Financial Condition of Idaho Agriculture: The Financial Condition of Idaho Agriculture is an annual publication which forecasts Idaho farm cash receipts, net farm income, and government payments to Idaho agriculture. For the last two years the document has been published in the form of a tri-fold and has been widely publicized. Each year 800 to 1,000 copies are printed and distributed throughout the state. The tri-fold and a PowerPoint presentation are delivered each year, by the Dean of the College of Agriculture, to the Idaho Legislature's Joint Legislative Economic Committee. The

forecast is used to make statewide budget planning decisions. The information is sent out annually in a press release and is reported in every major newspaper in the state, and in many smaller papers. The forecast is also announced on several farm radio programs. The tri-fold, PowerPoint presentation, and press release are also posted on the Department of Agricultural Economics and Rural Sociology web site. This year the forecast was included in the Idaho Outlook newsletter from Governor Dirk Kempthorne's office.

A $3,000 grant from the Idaho Grain Producers Association was used to survey Idaho producers, supporting a multistate farm policy preference project. This resulted in two publications. One publication from the University of Nebraska summarized national and regional survey responses. Bulletin 845, published by the University of Idaho, summarized the responses from Idaho producers.

The custom rates guide was revised, updated, and published, as were 28 crop costs and returns estimates. Eighteen crop enterprise cost and return estimates were developed and maintained in southwestern Idaho. These estimates are used by producers, financial institutions, agencies and others for planning and management purposes. Updating of livestock budgets is currently underway.

The newsletter PNW Dairy Monitor is distributed electronically each month, reaching producers, processors, media, and university faculty who are informed about economic issues and events related to dairy.

Farm and Ranch Management Training:

A high priority for University of Idaho Extension is farm and ranch profitability and sustainability. The Farm Management course was designed to aide farm and ranch operators by teaching useful management tools to help them be successful in their business ventures. Most of the participants have loans with financial institutions which require them to complete an approved training course in financial management. This year the ten-week long, two-year course was offered in three locations. Approximately 38 farm operations benefited from the program. The graduates who successfully complete the lessons not only gain personal benefit, but they also achieve compliance with the requirements of the loaning institutions.

On the Fort Hall Reservation, producers and community members are in need of educational assistance with ranch and farm record keeping. To address this need, the Fort Hall Extension Office coordinates with Idaho State University to provide a farm business management program to interested individuals. Many clients prefer to have individualized assistance so office or ranch visits are conducted to assist these individuals with record keeping and overall management techniques. Fifteen Tribal members were served in 2006.

Significant effort was spent to develop resource materials and present economic programs at extension commodity schools and other workshops. The custom rates guide was revised, updated, and published, as were 28 crop costs and returns

estimates. All 90 crop costs and return estimates published by the University of Idaho were placed on the AERS Department website and are available on CD.

A grant was secured from the Western RME agency to develop risk management education in a web-based format for dairy producers. This is a multistate project in collaboration with the University of Wisconsin and Texas A&M University.

Economic Feasibility Studies

Extension economists participated in an integrated project driven by air quality concerns in southern Idaho and the opportunity to market bi-products of sugar production. Our work indicated that pressed beet pulp is a viable replacement for corn silage in dairy rations; and necessary changes in production practices are feasible, but may require governmental support. Significant milk production increases occur when feeding pressed pulp to lactating dairy cattle in late lactation. Acceptability of the product by dairy producers and willingness to pay for the product are unknown at this time. The sugar company has instituted changes in the production of bi-products, with significant investments in plant fixed costs. While it is intuitive to presume that substituting sugarbeet bi-products for corn silage would reduce energy inputs required to grow corn, expected changes to air quality are unlikely to be measurable.

With dairymen voting out the Western FMMO in the spring of 2004, there was speculation about the impact on milk pricing in the former order area. Economists from Utah and Idaho reviewed pricing before and after order termination and determined that the industry would survive in the affected area.

b. Program Outcomes

The intended outcome from much of the educational programming in farm and ranch management includes providing relevant information that learners are motivated to use. Occasionally, learners are asked to complete questionnaires describing whether the intended outcomes have been realized. From three such surveys in 2006, an average of 96 percent of program attendees recognized that learning had taken place and 86 percent planned to put new knowledge to use on their farms and ranches. Other outcome indicators gathered through interviews and site visits include acceptance of management techniques and determination to apply knowledge gained to daily decisions.

There were no surveys done to measure outcomes resulting from the numerous economic forecasts and budgets developed in 2006. Some documentation of users accessing the information is available, and it is presumed that the information is put to use. It is also expected that copies of the Idaho financial condition tri-fold and the extension bulletins that have been distributed have helped stimulate discussions and have informed the development of policies reflecting the interests of stakeholders.

c. Funding sources

The Farm and Ranch Management program is supported by $50,981 in Federal

appropriations through Smith-Lever 3(b&c), by $250,330 in State appropriations for Agricultural Research and Extension, and by $4,396 in County appropriations for University of Idaho Extension. The Team used $6,850 in State and private grants to assist their efforts.

d. Scope of the Farm and Ranch Management Program

The Farm and Ranch Management team reported 0.2 FTEs of multistate activity including the survey of policy issues (National), dairy fiscal policies analysis (UT), and a number of regional publications (PNW). Further, Idaho is the only State in the region that continues to publish crop budgets and their use and benefit extends into our neighboring states.

Most of the direct education provided by the Farm and Ranch Management team is targeted to Idaho producers and consultants.

B. STAKEHOLDER INPUT PROCESS

University of Idaho Extension is proactive to collect stakeholder input and to address customer needs. Two specific examples of responsiveness include Spanish-language equipment safety training and green manure trials for weed suppression conducted by the Potato Topic Team.

University of Idaho Extension conducted a statewide process to gather stakeholder input in 1999, immediately prior to the development of the current plan of work. That process invited and involved Idahoans from across all counties and interests to help determine the priorities of Cooperative Extension. Findings from that effort were used to identify specific customer needs and program expectations and were built into the plan of work as priorities.

In the period since that statewide effort, stakeholder input has been solicited and gathered in a variety of ways. Our state level advisory process has been modified to help focus input. Each academic department in the College of Agricultural and Life Sciences has formed discipline-based advisory councils, and receives input at least annually. In addition, Extension has formed, assembled, and led a statewide advisory council through a process to provide regular input on issues and needs, and on programs and delivery. These new or re-formatted groups add to the input collected at the County level, through their numerous and representative advisory groups.
At the local level, educators in every county maintain a variety of advisory councils including 4-H leaders' associations and expansion (diversity) committees, agricultural producer committees, community development committees and FCS advisory committees. These groups are assembled at least annually to provide input about programs, needs, and priorities.

UI Extension collects input from stakeholders through ongoing program contacts with interest groups, commodity and industry representatives, other organized groups, and service and agency providers. Extension participates in a large number of interest-based organizations, frequently holding elected or *ad hoc* leadership positions. At many

organizational meetings, faculty learn about stakeholder needs and priorities through participation on program planning committees or through participation in the meetings and conferences. Faculty often schedule specific meetings with members of organizations to discuss existing and future programs and needs that interface the industry and the university. Faculty attend priority-setting meetings with commodity commissions, professional organizations, and industry or producer groups. Extension works with Federal and State agencies to share information about problems, programs, and priorities.

Formal needs assessments are periodically conducted with interest groups and stakeholders. In 2006, UI Extension facilitated listening sessions in 11 communities around the State, gathering information and input to guide the UI Sustainable Communities Initiative.

A statewide needs assessment was conducted during 2004. For that project, nearly 5,000 surveys were randomly mailed to Idaho households, and resulted in an overall 52 percent response rate. Data from that survey has been published and shared with UI Extension faculty, and is being considered during program planning activities. Data and interpretations from that survey will also be consulted for the development of the next 5-year plan of work.

Stakeholder input is incorporated throughout the development of Extension programs; from problem identification through evaluation. Extension program and planning teams gather and summarize input from stakeholders that is used to determine program priorities.

C. PROGRAM REVIEW PROCESS

At the most basic level, all Extension faculty (and all other UI faculty) develop annual position descriptions that outline major programs for the year. These position descriptions are subject to annual merit review at a number of levels, beginning with division leaders and department heads and ending with associate deans and deans. Merit and program success of each faculty member is also thoroughly reviewed throughout the tenure and promotion process by a panel of faculty, at years 3, 5, 10, 15, 20, etc. Review panels charged with specific program responsibilities conduct further merit review. These review panels may include commodity interests, other academics, agency personnel and stakeholders.

UI Extension has adopted a “Topic Team” approach to program planning and delivery. Teams of faculty meet to discuss priorities, and agree upon which of those projects should be advanced. Topic Team procedures are monitored by College administration. Topic Teams prepare and submit competitive grant applications for state critical issues funding. Successful applications are those that demonstrate that the project meets a team-identified, peer-reviewed priority, and will result in measurable outcomes for stakeholders.

An increasing number of Extension programs are supported through grants and awards made by Federal, State, or local agencies, foundations, and businesses. It is particularly true for agencies, and increasingly true for private organizations, that the projects meet high standards for quality, relevance, and impact. The success of faculty to obtain increasing support from external sources is an important indicator of program quality and effectiveness.

D. EVALUATION OF THE SUCCESS OF MULTI AND JOINT ACTIVITIES

University of Idaho Extension is involved in multistate and integrated activities as an integral part of our plan of work. Individual faculty have described and reported their involvement in multistate projects as part of their annual reporting process. The cumulative investment in multistate programming is reported for 2006 (see section E) and multistate projects are described for relevant topic teams described for each of the Goals in section A.

All extension faculty report their activities in relation to twenty-one Topic Teams that form the framework for our planning and reporting process. Most Topic Teams are populated by faculty from both research and extension missions, and topic team projects are intended to be fully integrated. To estimate our investment in integrated programs, however, we limit our calculations to the portion of extension funding invested in faculty with joint appointments in both University of Idaho Extension and the Idaho Agricultural Experiment Station. Our Topic Team priorities were originally identified and characterized following a statewide effort to generate stakeholder input, and are reviewed during annual Topic Team planning meetings. The cumulative total of investment planned in integrated activities is reported for 2006.

Idaho Extension realizes significant benefits from involvement in integrated and multistate activities. A principal benefit is that faculty and staff develop new ideas, skills, and interests through collaborations, as they share, learn, and co-develop new applications, new models, and methods with colleagues across mission areas and States. New curricula, new concepts in teaching and learning, and new ideas about how to address stakeholder needs are cornerstone benefits from collaborative efforts.

Did the planned programs address the critical issues of strategic importance, including those addressed by stakeholders?

Our efforts during 2006 directed Idaho Extension resources toward issues of importance to stakeholders. Among the many programs described in “section A. Planned Programs” (above), multistate examples can be found to address most of the 18 critical issues identified during the statewide stakeholder input process conducted to inform the development of our plan of work. Many of our multistate and joint activities produce annual output consistent with the objectives of the project. For example, the annual cow-calf symposium results in a predictable, annual product; and many of our research and extension trials with neighboring States result in annual gains in knowledge. However, it would be premature to proclaim that our programs have achieved their goals. Many of our intended goals and outcomes have long-term implications.

Did the planned programs address the needs of under-served and under-represented populations of the state?
Primary under-served populations in Idaho have been identified as Latinos (more than doubled over the last fifteen years, to more than 9% of the population), American Indians (1%) and economically disadvantaged persons. Programs that addressed the needs of under-served audiences were both planned and not planned. Among those planned efforts with the greatest influence on under-served residents are EFNEP, ENP (Extension Nutrition Program), FRTEP (Federally Recognized Tribal Extension Program), and 4-H.

The 4-H Youth Development program is key to reaching Hispanic residents; while 9 percent of the total population is of Hispanic origin, nearly 25 percent of 4-H-age children are Hispanic. Special efforts to reach Hispanic children have yielded an average of 27 percent participation by Hispanics in those programs. Over the past several years UI Extension has increased efforts to reach Spanish-speaking farm workers through a number of vehicles, including Spanish-language milking schools, Spanish-language pest management clinics, Spanish calving schools, and many individual Spanish-language classes taught as a part of other commodity school programs. New efforts have resulted in a Spanish–language gardening program that was delivered for the first time in 2006. We have increased the number of Spanish-speaking staff, specifically to work with underserved audiences. Our contacts with Latino audiences were approximately 8.9 percent of all face-to-face contacts in 2003, 8.6 percent in 2004, 8.7 percent in 2005 and 8.9 percent in 2006.

Notable accomplishments in 4-H include an increase in Latino 4-Hers from 1,737 in 2001 to 10,198 in 2006 (with nearly 1/3 of the gain coming in this reporting year). This level of minority participation represents a formidable accomplishment in a State whose minority population is less than 12 percent of the population total.

Much of our deliberate targeting of Native Americans is conducted through our two FRTEP programs. Participation in Extension programs for the Shoshone-Bannock tribe has increased. Further, Extension has begun to deliver more of our regional (multi-county) programs in partnership with the Shoshone-Bannock program (such as the Shoshone-Bannock range school), attracting traditional audiences to participate in programs on the Fort Hall Indian Reservation. Our FRTEP program on the Coeur d' Alene reservation has made significant progress over the past three years to become integrated with Tribal programs and to work with the Tribe to address their important issues. Notably, Extension is working with the Indian Health Service on diabetes and nutrition programs targeting (primarily) youth. Extension continues to work with the Tribal government in areas of youth development, community development, and natural resources. Extension is responding to an increasing number of specific requests from the leadership and membership of the Coeur d' Alene Tribe, and also the Nez Perce Tribe. In addition to the FRTEP programs, the 4-H Youth Development program in Nez Perce County has been proactively engaged on the Nez Perce Reservation, delivering after school programs at Lapwai Elementary School.

Did the planned programs describe the expected outcomes and impacts?
An increasing number of Extension faculty conduct evaluation studies as part of their programmatic activities. However, we are still learning, and there is variable quality in the measurement and description of our diverse programs. We are particularly inexperienced in our collective ability to translate learning outcomes into impacts. As UI Extension more fully adopts outcome-based programs, we will develop new approaches to accountability and implement new measurement of meaningful indicators. In most cases, multistate activities describe outputs of collaboration rather than intended outcomes. Examples of such planned multistate outputs include workshops, publications, conferences, databases and curricula.

Did the planned programs result in improved program effectiveness or efficiency?
UI Extension has lost approximately 22 percent of its professional workforce since 2002. Our Topic Team process, however, has allowed our faculty to deliver quality programs and to produce outcomes exceeding those measured in previous years. Our faculty continue to rely on external collaborations. We have increased our participation on multistate projects as well as with in-state partners. These collaborative efforts helped Idaho CES achieve efficiency and effectiveness, especially in the development of educational products. Multistate collaborations allow diverse faculty to combine skills, talents and resources to develop tools useful to each collaborator and their in-state colleagues. A notable multistate collaboration to train 4-H livestock judges brings a level of expertise and professionalism to fair judges that would not be available otherwise. Idaho participation in the eXtension project promises similar efficiencies. These collaborations greatly increase the number of programs offered through UI Extension, and reduce per learner costs to a fraction of what any state could accomplish on its own. Our involvement with the PNW publications effort enables Idaho, Washington and Oregon to develop regional products that meet the needs of multiple states, eliminating inefficiencies associated with duplication and reducing the per unit cost of production.

E. MULTISTATE EXTENSION ACTIVITIES

Appendix C

U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Multistate Extension Activities and Integrated Activities
(Attach Brief Summaries)

Institution University of Idaho
State Idaho
Check one: _X_ Multistate Extension Activities
____ Integrated Activities (Hatch Act Funds)
____ Integrated Activities (Smith-Lever Act Funds)

Actual Expenditures

Title of Planned Program/Activity	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
Goal 1; Competitive agriculture	$329,455	$249,977	$367,968	$ 257,013	$137,153	$243,069	$258,225
Goal 2; Safe Food	$23,328	$11,355	$74,837	$26,228	$14,787	$24,549	$8,802
Goal 3; Health & Nutrition	$26,762	$11,355	$79,972	$29,794	$12,856	$24,434	$10,024
Goal 4; Natural Resources & Environ	$267,601	$104,370	$127,270	$194,853	$246,855	$136,471	$172,228
Goal 5; Econ Oppor & Quality of Life	$272,584	$166,443	$137,226	$169,858	$270,331	$210,139	$260,647
Other multistate investment	$23,161	$197,500	$99,224	$82,139	n/a	$55,807	$63,154
Total reported by faculty	$942,894	$741,130	$886,497	$759,885	$681,983	$685,369	$773,140
Total actually expensed in budget		$695,289	$780,274	$709,380	$381,983	$689,625	$785,003

Charlotte Eberlein

_____ _____ ____April 20, 2007__
Director Date

Summary of multistate activities:
UI Extension faculty are involved in scores of interstate activities on multiple levels. Formal collaborations include contracts and grants in which UI is represented as PI, co-PI, or collaborator, with faculty from other land-grant institutions. Faculty also participate in regional research and coordinating committees to address issues of multistate importance, and in CSREES-led activities to help describe priorities and direct system resources toward those priorities. National efforts to which UI faculty contribute include development of curricula (e.g., through the CCS) and development of eXtension modules and resources. UI Extension faculty and staff are active contributors to national Extension professional organizations (including NAE4HA, NAEFCS, ANREP, NACDEP, NACAA, and ESP) and their regional sections, whose goals and activities address improved capacities and competencies for Extension professionals.

In the Western Region, UI commits significant resources to PNW publishing, a formal partnership with Oregon State and Washington State Universities to pool efforts and to conserve resources to make the best information available to Extension customers in each of the participating States. UI Extension is represented on the Board of Directors for both the Western Rural Development Center and the Western Regional Aquaculture Center. UI Extension personnel contribute to the National and Western Extension Directors Associations, the Western Program Leadership Committee, the Western Extension Leadership Development program, and Western Middle Managers training program.

Programs within Goal 1—Competitive and Profitable Agriculture—make up the single largest group of activities in which UI faculty collaborate to address issues and problems important to the region and Nation. UI Extension is represented on numerous regional research committees and coordinating committees that are identified with Goal 1. There is significant multistate involvement for pests in potatoes, but Idaho has important interests (and expertise) related to minor crops, as well. Variety trials and forage feasibility studies conducted with Oregon, Washington, and Utah are important to Idaho and the region. Testing programs in aquaculture are done in collaboration with Washington and North Carolina and serve consumers nationwide. Multistate contributions to the dairy industry focus on risk management education with Wisconsin and Texas and the creation of educational materials for Spanish-speaking workers in collaboration with experts from several states. UI Extension faculty participate to help train Washington State veterinary students, and provide services to farmers and ranchers residing in neighboring states. Within Goal 1, faculty report significant multistate investment for commercial and consumer horticulture, partly reflecting cross-training of Master Gardeners, and partly reflecting our inter-dependence to provide knowledge and education for the green industry. Idaho participates in COIN (California, Oregon, Idaho, and Nevada) to collaborate on issues important to ranchers and beef producers and participates in the NW pilot project for the National Animal Identification System (NAIS). Our work with small acreages and sustainable farming education are closely coordinated with Washington.

Goal 2 programs that have multistate partnerships and collaborations include teaching sanitation to youth (through Germ City) and to adults and food service workers. Idaho collaborates on curriculum development for these programs and serves clientele from neighboring States.

Goal 3 programs with multistate significance include the national and regional efforts to mount a major campaign against obesity. Idaho also contributes to National goal-setting and evaluation for important programs including EFNEP and the Food Stamp Nutrition Education Program.

Within Goal 4, many of our efforts with IPM are multistate. Work with invasive species almost always involves partners from neighboring States (and is the focus of regional activity), as does work on various crop pests, pest detection networks, and pest alert networks. The Western IPM Center and similar infrastructure are integral to the work of our faculty. Idaho participates as part of the Western Region Committees for Forestry Extension, Rangelands, and has formal arrangements and shared personnel with Washington State University as part of the STEEP project and the PNW water quality project. Idaho is part of several rangeland management mulitstate projects that address fire science and sustainability of western rangelands.

Goal 5 programs with significant multistate involvement include much of the youth development activity, through participation in the CCS project, national conferences, professional development, and youth leadership development opportunities. Our 4-H programs in Northern Idaho are part of a unique multistate collaboration with Washington, as are many of our programs for agricultural entrepreneurs.
Idaho has contributed faculty talent and time to lead the eXtension program for financial security later in life. The same faculty have collaborated with other states to produce an ongoing stream of materials and programs for use in Idaho and across the country.

F. INTEGRATED ACTIVITIES

Appendix C

U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Multistate Extension Activities and Integrated Activities
(Attach Brief Summaries)

Institution University of Idaho
State Idaho
Check one: ____ Multistate Extension Activities
____ Integrated Activities (Hatch Act Funds)
__X_ Integrated Activities (Smith-Lever Act Funds)

Actual Expenditures

Title of Planned Program/Activity	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
Goal 1; Competitive agriculture	$824,955	$508,586	$594,100	$568,406	$862,490	$1,282,106	$1,077,946
Goal 2; Safe Food	$40,789	$6,136	$4,769	$9,466	$44,828	$100,373	$92,170
Goal 3; Health & Nutrition	$49,499	$1,455	$3,706	$4,337	$59,008	$121,041	$43,674
Goal 4; Natural Resources & Environ	$248,578	$118,495	$118,405	$99,808	$464,151	$525,864	$442,892
Goal 5; Econ Oppor & Quality of Life	$147,995	$286,465	$165,517	$106,781	$217,339	$351,137	$434,710
Total (Smith-Lever)	$1,311,816	$921,137	$886,497	$789,099	$1,647,816	$1,855,384	$2,091,392

___ _____ April 20, 2007_____
Director Date

Form CSREES-REPT (2/00)

Summary of integrated activities:
University of Idaho Extension supports “Topic Teams” to develop issue-area work plans and accomplishment reports for the System. In order that UI College of Agricultural and Life Sciences programs and faculty are integrated across missions, the Topic Teams are populated by County Educators, (who nearly always have Extension-only appointments), Extension Specialists (who nearly always have joint appointments with Extension and the Idaho Agricultural Experiment Station), and Research Scientists (who normally have joint appointments with the Experiment Station and Academic Programs). Although research accomplishments are barely touched upon in this report, a vast majority of the report represents some level of integration between research and Extension. In most cases, Research faculty and Specialists are integrated with County Educators to identify and prioritize needs, Research faculty and Specialists (often with County Educators) conduct research, and Specialists and County Educators disseminate that information to users.

Integrated Topic Teams reporting in 2006 include:

Goal 1:	Beef	Goal 4:	Forest Management
	Dairy		Range Management
	Cereals		Nutrient Management
	Forages		Water Quality
	Small Farms and Emerging Specialty Crops		Commercial and Consumer Horticulture
	Potatoes		
	Sugarbeets	Goal 5:	Family Development
	Sheep, Swine, Aquaculture and other livestock		4-H and Youth Development
	Other Idaho Commercial Crops		Community Development
Goal 2:	Food Safety		Family Economics
			Farm and Ranch Management
Goal 3:	Human Health & Nutrition		

To quantify UI Extension expenditures for integrated programs, we calculate the amount of Extension investment into the salaries of those specialists that have joint appointments with the Experiment Station. In 2006, there were 43 such employees, spread across all of the USDA Goal areas. These Specialists are housed in CALS Departments of Agricultural Economics and Rural Sociology; Animal and Veterinary Sciences; Biological and Agricultural Engineering; Food Science and Toxicology; Plant, Soils, and Entomological Sciences; and in the School of Family and Consumer Sciences. In the College of Natural Resources, Specialists with joint research-Extension appointments are housed in the Department of Forest Resources and the Department of Rangeland Resources. Not considered in our calculations are the operating budgets of Specialists or the salaries or operating for Extension/Research Associates and Scientists who support those integrated Specialists programs.