2017 University of Idaho Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

This combined report of accomplishments for the College of Agricultural and Life Sciences (CALS) represents 103.64 Extension faculty FTEs in outreach education programs and 72.7 research faculty FTEs. The Extension FTEs are contributed by 77 county-based Extension Educators organized into four extension districts and 49 Extension Specialists affiliated with academic departments. Extension programs are conducted by faculty organized into 15 program teams (Topic Teams). Extension partners on those teams have generated approximately $7.0 million in external grant support and have recorded 405,739 direct contacts. Extension faculty produced 64 peer-reviewed Extension publications, 69 articles in professional and scientific journals, and many miscellaneous articles including research reports, peer reviewed proceedings, and contributions to trade journals. The research FTEs are distributed across nine academic units and located at the main campus and at off-campus Research and Extension centers throughout the state. Research faculty contributed to 2 plant patents during FY2017.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	100.0	0.0	68.0	0.0
Actual	103.6	0.0	72.7	0.0

II. Merit Review Process

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

- Internal University Panel
- Combined External and Internal University Panel
- Expert Peer Review
- Other (administrative review)

2. Brief Explanation

Faculty continue to use traditional and novel methods to involve stakeholders as advisers. Our counties have complete mailing lists for all households in the county. In some cases, distributing mail surveys to every address in a county has been used during the past several years. Recently, one such survey was a multistate effort seeking input from small farm producers in Idaho and Washington. To encourage participation in focus groups, few local budgets can support cash incentives, but nearly all such activities

provide food and refreshment for participants; some are able to advertise that a meal will be served to those who participate. To gather stakeholder input from our growing Spanish-speaking population, announcements are printed and broadcast in Spanish through appropriate venues. In some cases (nutrition education, for example), Latino community leaders were invited to sessions specifically to help the University understand better how to assess the needs of their communities, including residents less likely to have participated in past sessions. In most cases, people are enticed to provide input as they are taking advantage of opportunities to learn something that meet their needs and solve problems.
The major stakeholder groups providing input regarding the Idaho Agricultural Experiment Station's (IAES) spectrum of research activities include the following:
• The CALS Dean's Advisory Board was instituted in 2002. This committee is comprised of a spectrum of stakeholders representing government, industry, and education in Idaho. Academic departments of CALS also have individual advisory boards (see below). The group meets twice each year.
• Idaho's 17 agricultural commodity commissions and organizations provide advice specific to commodity-based programs and appropriate disciplines and departments within CALS. In addition, IAES researchers provide leadership and most of the content for several major commodity schools that are presented annually in the state. The commodity schools are well attended by stakeholders from Idaho and the region. These "schools," while primarily conducted as major outreach/technology transfer to provide the latest research results to stakeholders, also serve as major sources of stakeholder input to IAES regarding research priorities and directions. Commodity schools are annually conducted for potato, cereal, and sugar beet industries. As an example, the UI Potato School is a three-day event that annually attracts approximately 1,400 registrants who come from Idaho, the Pacific Northwest (PNW) region, and virtually all other states involved in potato production, as well as representatives from approximately 25-30 countries.
• Beyond the commodity schools mentioned above, IAES faculty organize and participate in "field days" at six of the IAES's off-campus Research and Extension centers. They also conduct several more focused tours or workshops such as: weed identification, ecology, management and technology at several locations, potato storage research open-house, pomology program open-house and field day, and tours of the IAES's crop genetic improvement research programs for beans, potatoes, wheat, and the oilseed crops of rapeseed and mustard. These stakeholder events function as educational/technology transfer events as well as opportunities for stakeholder interaction.
• The IAES research project portfolio and an abbreviated version of the POW is annually shared and discussed with representatives from the executive branch of state government including the Governor's Office, the Department of Agriculture, the Department of Environmental Quality, Department of Health and Welfare, and the Department of Commerce, as well as key committees (agriculture and appropriations) and leadership of the Idaho Legislature.
• The faculty, staff, and students (both graduate and undergraduate) of CALS have a vested interest in the development of appropriate research programs of high quality that are responsive to the needs of the state and region. This university stakeholder group is an important source of valuable input to the IAES and plays a major role in program development and delivery. While performing their research, most researchers in the IAES have frequent and substantive contact with stakeholders in their research programs. An array of inputs regarding program directions and priorities are more informally received in this manner and are subsequently considered and often implemented.
• The CALS has also mandated the formation of advisory committees for each of the eight academic departments in CALS. As of 2002, all departments had established advisory committees. These committees are comprised of representatives from a broad base of stakeholders sharing interest in the disciplines, programs, and strategic plans of the departments. These committees are now serving as a significant additional source of stakeholder input for the IAES and CALS. In addition, once a year in meetings the departmental advisory committees meet on campus with the CALS and IAES leadership as well as with the Dean's Advisory Board on program priorities and directions for the college, the experiment station and the departments. One representative from each department's advisory committee serves on the Dean's Advisory Board.
• University of Idaho Extension has citizen advisory groups in 42 of Idaho's 44 counties and active 4-H

promotion and expansion committees in most counties. These committees, which are composed of a very diverse and broad mix of public interests, provide input regarding extension and research program priorities from the county perspective. In some counties, "Friends of Extension" gatherings are scheduled and widely advertised to attract residents to stakeholder input meetings. Extension Specialists have advisory groups as well, many of which are formally associated with producer organizations or commodity interests. A Statewide 4-H Advisory Board and a Statewide Extension Advisory Board contribute annual input to guide Extension programs.

III. Stakeholder Input

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

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public

Brief explanation.

During 2017 CALS representatives met at least once with each of Idaho's commodity commission groups. In general, these meetings were conducted to determine priorities for research and extension programs relevant to the commissions. The CALS administration met two times with the Dean's Advisory Board and once with faculty as a group in each of Idaho's four administrative regions. At each of these meetings, representatives are asked to help identify those who should be asked to serve on future advisory boards.

Other important venues for collecting stakeholders' input included Extension Annual Conference, annual Ag Summit and legislative strolling dinner in Boise. The Dean or his designee also met with state legislative leaders in Boise regarding agriculture, science and technology, environmental issues, and educational appropriations. These meetings included testimony before several legislative committees as well as informal meetings. CALS research and extension faculty held numerous field days and commodity schools across the state.

Counties follow specific marketing plans that are developed locally, based upon the demographics and characteristics of their communities and populations. Those plans specify efforts needed to ensure parity in program audiences. Depending on faculty areas of expertise and program efforts, stakeholders may be quite easy to identify (for example, potato growers or dairy owners) or may be more difficult to locate (for example, individuals with chronic disease or families in financial difficulty). For farmers and ranchers, Extension collaborates with the Idaho State Department of Agriculture or other appropriate agencies to verify contact lists, including lists of those individuals who are licensed to apply pesticides. Extension faculty partner with the Idaho State Department of Lands, using forest taxpayer lists to help identify private forestland owners. For low income audiences, Extension works with schools, the Department of Health and Welfare, the local faith community, the Idaho Food Bank and the Idaho Hunger Relief Task Force to identify issues and potential clientele. Partnerships with AARP-Idaho and other advocacy organizations have been instrumental in reaching target audiences.

County faculty report that requests are made to advisory committees and to local government leaders and private citizens to help identify new stakeholders. Extension Specialists report that they

use commodity organizations and other groups in a similar fashion. New faculty members are particularly reliant on veteran faculty to help guide them to stakeholders.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Needs Assessments
- Use Surveys
- Other (Commodity-based research and Extension interactions)

Brief explanation.

To generate participation of the public for input to Extension, outreach and advertising was designed to effectively reach all residents of the partner communities. Most faculty members participate on other local advisory boards, commodity association advisory boards, or other venues (for example, the Idaho Potato Commission, soil and water conservation district and weed management district boards, grower's cooperatives, Idaho Aquaculture Association board of directors, etc.), where faculty are part of another organization's efforts to learn and establish program priorities. Where no such organization exists, faculty help launch new organizations, such as the Biocontrol Task Force launched last year in Idaho. Many faculty are invited to present to a diversity of organizations such as chambers of commerce, industry stakeholders, and service organizations, where participants are asked for or volunteer input about University research and extension programs. For many programs, stakeholder input is gathered from key informants. For other programs, input is collected from individuals by conducting surveys using mail, in public spaces or using online survey methods to collect information from traditional and nontraditional stakeholders alike. Gathering input for several programs involved a major effort to reach underserved audiences (4-H Youth Development and Operation: Military Kids for example) through targeted visits and phone calls to organizations and individuals known to be advocates for some of our underserved groups.
For hard-to-reach audiences, faculty members meet with representatives or advocates for the target audiences. Examples include the juvenile justice community, local Head Start personnel and the association of Idaho Head Start programs. For other targeted audiences, people starting businesses for example, faculty members conduct surveys for business development service providers and interact with agricultural specialists working for the power industry. Local Extension offices regularly develop surveys for input from the community. Information about how to participate in the surveys is often mailed out in newsletters, announced in newspapers, posted on our webpages and in Facebook. Comments left on Facebook and links on blogs and web pages are increasingly valuable to help understand the needs and interests of our clientele. Most faculty members also ask program participants to recommend future programs. Some faculty reported using newsletters to request input from readers.
During 2017 CALS representatives met at least once with each of Idaho's commodity commission groups. In general, these meetings were conducted to determine priorities for research and extension programs relevant to the commissions. CALS administration met two times with the Dean's Advisory Board and once with faculty as a group in each of Idaho's four administrative regions. Other important venues for collecting stakeholder input included Extension Annual Conference and annual Ag Summit and legislative strolling dinner in Boise. The Dean or his designee also met with state legislative leaders in Boise regarding agriculture, science and technology, environmental issues, and educational appropriations. These meetings included

testimony before several legislative committees as well as informal meetings. CALS research and extension faculty held numerous field days and commodity schools across the state.

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

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Meeting specifically with non-traditional individuals
- Other (various)

Brief explanation.

During 2017, a statewide needs assessment was conducted. In-person listening sessions were conducted at six different locations throughout the state. An additional five listening sessions were conducted electronically in our most rural counties. These meetings were advertised as open to all. Individuals not attend a listening session, were given an opportunity to participate by a survey which was emailed.
Several shifts in emphasis during the past several years have been the direct result of stakeholder input, including a major increase in investments for family financial education, health and fitness, and fighting obesity. These program expansions have been reported during the past several years. In 2015, CALS demonstrated continued efforts to respond to Federal and State agency stakeholders by shifting resources into childhood obesity, hunger, and other priority programs. We have accelerated our efforts to build a program that integrates health and nutrition, small farms and horticulture to address local food systems challenges. Significant progress in 2015 included the creation of two area food systems educators to help coordinate work in the healthy communities topic area.
Discipline-driven programs are often re-directed because of input gathered at each event to help guide the content of the next program. As examples, during the past years, University of Idaho has greatly increased research and outreach activities related to annual forages because of stakeholder input. In 2015, several annual forages trials and demonstrations were added to our portfolio of outputs. Participants at the international Idaho Potato Conference are surveyed each year to provide feedback about their continuing education needs as are participants at more than two dozen cereal schools and beef schools. The suggestions from participants are used, in part, to direct the agenda for the next iteration of the program. We have also identified a growing demand for education about health and fitness. Administrators have ongoing discussions about how positions can be re-tasked or re-classified to respond to stakeholder needs.
Information acquired state-wide from meeting with various stakeholders is discussed at various CALS leadership meetings. These include monthly CALS leadership meetings which are attended by dean and directors as well as leaders from academic departments, research and extension centers and district offices. In addition, priority setting based on stakeholder input is conducted in an annual dean and directors' retreat and in annual research-extension topic team meetings.
Local Extension offices regularly develop surveys for input from the communities. Information about how to participate in the surveys is often mailed out in newsletters, announced in newspapers, posted on our webpages and in Facebook. Input collected from more than 8,000 individuals is currently influencing the educational programming delivered in Extension horticulture programs and a follow-up survey is in the planning stages.

Methods to deliver university programs and make materials available are also changing based on stakeholders' inputs. Significant changes include a major shift to internet availability of scientific papers and extension publications, remote delivery of programs through internet-based platforms, and through the use of blogs, Facebook, and other media.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

Brief explanation.

We are witnessing increased interest in local food systems, food insecurity, hunger, annual and alternative forage sources, reducing energy costs associated with irrigation, and improving participation in higher education, particularly for Hispanics. In response, Extension has created two new positions for local food systems education and CALS is working to create a program of excellence to integrate teaching, research and extension faculty around healthy community issues. We continue to establish new trials for annual forages around the state and deliver educational programs to upgrade or calibrate sprinkler systems and to install drip irrigation where relevant. We have initiated a number of College Fair events for teens and parents across Idaho, including partnerships with Native American and Hispanic communities. We are observing changes in the method of program delivery and information access desired by our stakeholders, favoring an array of electronic and on-demand formats.

Brief Explanation of what you learned from your Stakeholders

See above.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{No Data Entered}	{No Data Entered}	{No Data Entered}	{No Data Entered}

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	2842132	0	2722886	0
Actual Matching	2842132	0	2722886	0
Actual All Other	7498711	0	28413025	0
Total Actual Expended	13182975	0	33858797	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	0	0	0	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Sustainable Energy: Land and Livestock

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%		0%	
111	Conservation and Efficient Use of Water	5%		0%	
121	Management of Range Resources	10%		10%	
122	Management and Control of Forest and Range Fires	5%		0%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%		10%	
205	Plant Management Systems	12%		0%	
213	Weeds Affecting Plants	5%		10%	
216	Integrated Pest Management Systems	5%		0%	
301	Reproductive Performance of Animals	5%		15%	
302	Nutrient Utilization in Animals	10%		15%	
305	Animal Physiological Processes	5%		15%	
306	Environmental Stress in Animals	5%		0%	
307	Animal Management Systems	12%		15%	
308	Improved Animal Products (Before Harvest)	5%		10%	
605	Natural Resource and Environmental Economics	5%		0%	
901	Program and Project Design, and Statistics	1%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	8.7	0.0	6.0	0.0
Actual Paid	13.8	0.0	5.6	0.0

Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
431147	0	445344	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
431147	0	445344	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
864561	0	4888844	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 20,689 direct educational contacts through Extension and 398,215 indirect contacts. Team members published 18 articles in refereed journals and 12 peer-reviewed multi-state Extension publications (PNW), and they participated in projects funded by $328,151 in grants. Team members were active in 23 counties.
Planned activities included beef schools, forage schools, Beef Quality Assurance (BQA) workshops, weed workshops, monitoring workshops, demonstration/applied research trials, Extension publications, popular press articles, tours, field days, faculty training sessions, websites, office visits, and farm/ranch visits. As appropriate, information generated by the team was presented in scientific journals and at professional meetings.
Alfalfa and annual forage production and harvesting activities included:

- Alfalfa variety trials
- Irrigation management trials and demonstrations
- Cover crop seeding and grazing studies
- Control of alfalfa pests
- Western Alfalfa and Forage Conference
- Idaho Hay and Forage Conference
- Local forage and pasture schools and workshops
- Popular press and journal articles
- Forages website
- Extension publications
- Educating lawmakers and the public

Efficient production management and marketing of livestock activities included:

- Beef Quality Assurance workshops
- Pasture management workshops including ventenata control and rejuvenation
- Workshops and projects related to Trichomoniasis and dystocia
- Local Winter Beef Schools, Cowboy Schools, and Forage Schools
- Educational programs targeting young cattle producers
- Applied reproductive strategies in beef cattle, including ultrasound technology for pregnancy checks

- Popular press and journal articles
- Extension publications
- Individual consultations on marketing, management, and grazing systems and management

Rangeland resource management and utilization activities included:

- Idaho Weed Conference
- Idaho Range Livestock Symposium
- Workshops related to range monitoring, mineral status, ventenata biology and management, and invasive plant survey procedures
- Weed education and management plans, including plant community susceptibility models used in the state and region and a new edition of the bulletin titled, "Idaho's Noxious Weeds."
- Range fire evaluations, including a federal fire rehabilitation plan for 56,000 acres
- Pesticide specialist and recertification training, and pesticide safety training
- Popular press and journal articles
- Extension Publications

2. Brief description of the target audience

The target audience included beef cattle producers and ranchers, tribal beef producers, representatives of several beef industry sectors (cow-calf producers, stocker/backgrounders, feedlot operators, allied industry representatives), agribusiness, sheep producers, veterinarians, organic farmers, forage producers, pesticide applicators, land owners, small-acreage land managers and farmers, public land grazing allotment permitees, county commissioners, decision makers, livestock associations (i.e., Idaho Cattle Association, Wool Growers Association, etc.), conservation groups, land trusts, consultants, scientists, nonprofit organizations, 4-H and other youth, university staff and faculty, departments/individuals who have a need for educational programming and projects in livestock and natural resource management, tribal land management agencies, and federal, state, and local land management agencies.

3. How was eXtension used?

Use of eXtension in this program was primarily as a resource for Extension professionals.

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	17079	396315	3610	1900

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	12	27	39

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Schools (multiple sessions of instruction on multiple subjects)

Year	Actual
2017	28

Output #2

Output Measure

- Workshops (a single meeting with one or more subjects presented, e.g., winter beef schools)

Year	Actual
2017	72

Output #3

Output Measure

- Demonstrations/applied research projects.

Year	Actual
2017	40

Output #4

Output Measure

- Popular press articles

Year	Actual
2017	90

Output #5

Output Measure

- Newsletter issues

Year	Actual
2017	55

Output #6

Output Measure

- Field days

Year	Actual
2017	20

Output #7

Output Measure

- Presentations at producer meetings

Year	Actual
2017	285

Output #8

Output Measure

- Budgets

Year	Actual
2017	2

Output #9

Output Measure

- Curriculum

Year	Actual
2017	2

Output #10

Output Measure

- Survey

Year	Actual
2017	3

Output #11

Output Measure

- Tours

Year	Actual
2017	17

Output #12

Output Measure

- Websites

Year	Actual
2017	0

Output #13

Output Measure

- Blog

Year	Actual
2017	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Learners acquire knowledge and understanding of new, approved, or recommended practices. Indicator: Number of participants demonstrating change in knowledge on evaluation instruments (i.e. pre- and post-test results). [number of evaluations administered and evaluated]
2	Learners will adopt new, accepted, or recommended production practices. Indicator: Number of participants indicating in post- surveys that they intend to implement recommended practices.
3	Learners are aware of new, accepted, or recommended production practices and emerging technologies (BQA, NAIS, etc.) Indicator: Number of participants at educational events [Based on sign-in sheets]
4	O: Producers possess skills and knowledge about beef quality assurance (BQA). I: Number of Idaho Beef Quality Assurance (BQA) Program certificates awarded.
5	Biological control continues to be proven one of the most effective, environmentally sound, and cost-effective pest management approaches used to controlling weeds. Since, 2000, regulations on natural enemy importation and introduction have been tightened.

Outcome #1

1. Outcome Measures

Learners acquire knowledge and understanding of new, approved, or recommended practices. Indicator: Number of participants demonstrating change in knowledge on evaluation instruments (i.e. pre- and post-test results). [number of evaluations administered and evaluated]

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	392

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Thirty-three producers (100%) adopted the minimum standards for bull selection. Only two out 168 bulls were rejected for 2017.

What has been done
Two pesticide applicator recertification seminars were held with 189 in attendance. In addition, there was one pre-license training workshop and one pesticide safety presentation for College of Southern Idaho SafetyFest.

Results
Of the 189 participants, there were 132 respondents on retrospective post surveys who indicated an increase in knowledge for the topics presented at the recertification seminars.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
121	Management of Range Resources
122	Management and Control of Forest and Range Fires
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
213	Weeds Affecting Plants

216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

Learners will adopt new, accepted, or recommended production practices. Indicator: Number of participants indicating in post- surveys that they intend to implement recommended practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	114

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers need to improve bull quality and use of expected progeny differences in bull selection to decrease the rate of dystocia and improve cattle quality.

What has been done
Educational programming is provided annually on bull selection and expected progeny differences. Minimum standards are set for producers to follow when purchasing bulls.

Results
Thirty-three producers (100%) adopted the minimum standards for bull selection. Only two out 168 bulls were rejected for 2017.

4. Associated Knowledge Areas

KA Code	Knowledge Area

102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
121	Management of Range Resources
122	Management and Control of Forest and Range Fires
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
605	Natural Resource and Environmental Economics

Outcome #3

1. Outcome Measures

Learners are aware of new, accepted, or recommended production practices and emerging technologies (BQA, NAIS, etc.) Indicator: Number of participants at educational events [Based on sign-in sheets]

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1721

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Pastures make up a large percentage of individually owned private land, so presenting landowners with knowledge on how to properly manage and rehabilitate pastures has conservation and economic benefits.

What has been done
A workshop was held presenting various topics on pasture management and rehabilitation.

Results
42.5% of participants reported a gain in knowledge, with 85.7% stating they would implement recommended practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
121	Management of Range Resources
122	Management and Control of Forest and Range Fires
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
605	Natural Resource and Environmental Economics

Outcome #4

1. Outcome Measures

O: Producers possess skills and knowledge about beef quality assurance (BQA). I: Number of Idaho Beef Quality Assurance (BQA) Program certificates awarded.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2017 180

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Beef Quality Assurance (BQA) is a national program that offers training for cattle producers on proper management techniques and a commitment to quality within every segment of the beef industry. The program contributes to consumer confidence that the beef they purchase has been raised and processed using humane and safe production practices.

What has been done
Over the past two years, six livestock schools have been held across the Magic Valley with over 100 participants. BQA learning modules were presented on the following topics: winter feeding, needles and injection site management, health management, beef industry today, livestock handling, genomics, scours, and calving management.

Results
Of those who participated, 19 ranchers became BQA certified. Many ranchers see these BQA certification opportunities as a benefit to their ranches and have become BQA certified to be able to sell their cattle as BQA-raised cattle. This program has had a positive impact on the Magic Valley because it brings a nationally recognized program to the producers of the region, adding value to the cattle they produce. This certification also creates a positive public image and inspires consumer confidence in the beef industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

Outcome #5

1. Outcome Measures

Biological control continues to be proven one of the most effective, environmentally sound, and cost-effective pest management approaches used to controlling weeds. Since, 2000, regulations on natural enemy importation and introduction have been tightened.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Houndstongue (Cynoglossum officinale) is native to Eurasia and arrived in North America in the mid-19th century. It is now an invasive rangeland weed in nearly all Canadian provinces and adjacent US states. It poisons animals that ingest it and hinders the establishment of forage species in new pastures. Its barbed fruits become attached to cattle, causing irritation and potential market loss. Biological control offers an alternative to the unrealistic chemical and mechanical management methods. Therefore, finding natural enemies to attack houndstongue and not damage related native plant species is desirable.

What has been done
Research on the host finding behavior of the candidate biological control organism a seed-feeding weevil, M. borraginis has been completed. Both chemical and visual plant cues were used to study the host finding and host recognition behavior of M. borraginis.

Results
Work on the host-finding mechanisms at the University of Idaho confirmed that houndstongue is strongly preferred as a host plant by M. borraginis. As houndstongue relies on seed for reproduction and spread, an agent that destroys seed could be useful, but only if it inflicts significant damage. We found that either adult feeding or larval mining halved houndstongue's seed output, on average, with up to 89% of seeds destroyed. A petition for the release of M. borraginis in the United States is being prepared for consideration.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Programmatic Challenges

Brief Explanation

Growers face many challenges. A very rough winter in 2016-17 led to a late start to the farming season and loss of many acres of alfalfa and winter wheat. A bright side to the rough winter was no lack of irrigation water.
A growing population, government regulations, local regulations, crop prices driven by international forces, increasing fuel prices, difficulty finding labor, and other such problems made this a difficult year. The dairy industry, the region's largest economic contributor, may finally start to see profit late this year after a tough stretch of low milk prices.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Between 2015 and 2016, we conducted a survey in collaboration with Dr. Troy Hall, a natural resource sociologist at Oregon State University, on weed biological control and weed IPM implementation perceptions in Idaho. We sent the survey to members of (1) Idaho Weed Control Association (IWCA), (2) Idaho Association of Weed Control Superintendents (IAWCS), (3) Northern Rockies Invasive Plant Council (NRIPC), (4) Idaho Association of Soil Conservation Districts (IASCD), and (5) other professionals in invasive species and land managers in tribal, state, and federal agencies. All in all, the effective response rate of the survey was 45.2% (n = 362). The survey was only sent out to professional land managers - our key clientele - but we are currently repeating the survey with the public at large (n=2,000).
The goals of the survey were to (I) provide accurate baseline data for impact assessments and (II) to identify IPM priorities with regard to weed control. For Goal I, there was broad consensus among respondents that noxious weeds are a very significant problem in Idaho (94.5%), that they harm native plant species (96.6%), and that they pose risks to livestock (91.4%) and human health (82.3%). Almost all respondents (93.1%) were of the opinion that if not controlled, noxious weeds and associated problems will greatly increase, and most (91.1%) believe that noxious weeds have severe impacts on agricultural productivity of rangelands.

Key Items of Evaluation

One of the producers we work with has been experimenting with cover-crops for the last few years. He has made the decision to take his cattle off public ground and use only farm ground that he leases and the ground that he owns. We were able to see him turn out his cattle into a cover-crop field that is just adjacent to a harvested corn field. He is grazing them together to allow the cattle to be able to go from field to field and try to regulate their nutritional needs. The producer was so excited to see the production of his cover crop that

was planted following winter wheat. This is something we have been helping him accomplish for many years. It was very gratifying to see that take place and how pleased he was with the result. So here is a producer that is no longer using public grazing and is able to increase the forage capability on his farm by using a double crop of cover-crops. More and more, producers with cattle are starting to use these forage strategies.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Global Food Security and Hunger: Cereals

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		20%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		10%	
202	Plant Genetic Resources	20%		10%	
205	Plant Management Systems	25%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		15%	
212	Pathogens and Nematodes Affecting Plants	10%		10%	
213	Weeds Affecting Plants	10%		15%	
216	Integrated Pest Management Systems	15%		10%	
502	New and Improved Food Products	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	4.6	0.0	10.0	0.0
Actual Paid	5.6	0.0	9.5	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
185730	0	443727	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
185730	0	443727	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
269492	0	4926730	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 9,927 direct educational contacts through Extension and 117,358 indirect contacts. Team members published six articles in refereed journals and 13 Extension publications, and they participated in projects funded by $526,698 in grants. Team members were active in 15 counties. Multiple cereal schools were conducted throughout the state allowing Extension faculty to interact with growers and provide technology transfer for new varieties. Cereal school topics included: irrigation management, improving water use efficiency, varietal performance, disease, seeding rates, cover crops, herbicide-resistant weeds, costs and benefits of liming, proper chemical management, insect impact and control, cereals research and education produced by University of Idaho, and grain quality. Other methods of transferring knowledge to producers, industry, and the public included Integrated Pest Management (IPM) training workshops, field tours and field days (many related to cover crops), off-campus credit and continuing education classes, and stakeholder seminars.
Team members met with grower and field worker advisory committees, commodity commissions, processors, and industry representatives to pass on current research data, share knowledge, implement projects, and get their feedback. The team also provided molecular testing of samples for growers and provided quick response to this year's barley yellow dwarf virus (BYDV) outbreak.
Publication types included newsletters, Extension publications, progress reports, scientific publications, and general media articles. Topics covered this year included IPM, sustainable dryland farming, and spring wheat, barley, and oats weed control.
Research topics included a cover crop rotation study, BYDV alternative weedy host research, weed control studies, sources and rates of lime applied to acid soils, low elevation sprinkler application irrigation, and hard winter wheat studies in southeastern Idaho. The workgroup team also assessed variation in varietal response to different quantities of nitrogen fertilizer and seeding rates. New trials were established to examine the impact of ethaboxam on the agronomic performance of spring wheat, as well as the ability to manage metalaxyl-resistant Pythium species.
Team members interacted with other professionals at meetings to transfer knowledge, form alliances, and implement projects.

2. Brief description of the target audience

Target audiences include:

- Cereal growers in Idaho - This group was provided with technology to enhance cereal production and profitability, and they were asked to provide feedback and suggestions related to needs and areas of concern for profitable cereal production. This group includes farmers, ranchers, farm partners, landowners, and producers interested in organic production.

• Agribusiness and support workers - This group was provided with resources for technology development and delivery, and they were asked to provide feedback and suggestions for directions of the program. This group includes agribusiness support personnel, pesticide and fertilizer producers, Extension educators, USDA-ARS wheat and barley breeders, private breeding companies, crop advisors, crop insurers, agricultural lenders, aerial applicators, State Department of Agriculture personnel and field staff, seed dealers, grain distributors, grain mill workers, crop fertility providers, crop producers interested in barley rotation, industries using malting barley as a raw material, and crop protection products providers.

• Other target audiences include elected officials, nonprofits, academic agricultural researchers, other researchers and economists, Natural Resource Conservation Service employees, Soil Conservation District employees, and the general public.

3. How was eXtension used?

Use of eXtension in this program was primarily as a resource for Extension professionals.

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	9794	117205	133	153

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

Patent Applications Submitted

Year: 2017

Actual: 1

Patents listed

201700189, Common Wheat, UI Sparrow

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	13	44	57

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Idaho Cereal Schools

Year	Actual
2017	29

Output #2

Output Measure

- Release and adoption of new cereal varieties

Year	Actual
2017	0

Output #3

Output Measure

- Publication of CIS, Progress reports, PNW, and other Ext. Pubs.

Year	Actual
2017	21

Output #4

Output Measure

- Develop pest control technology - project/experiments

Year	Actual
2017	11

Output #5

Output Measure

- Research on management systems - projects/experiments

Year	Actual
2017	38

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Producers gain knowledge about improved cereals management at cereal schools, field days, seminars, and re-certification events. I: Number of participants attending cereal schools, field days, etc.
2	O: Producers are aware of cereal resource publications. I: Number of cereal extension publications distributed or downloaded.
3	O: Producers adopt new cereal varieties. I: Increase in number of acres of new varieties (released within 5 years; greater than previously grown).
4	O: Adoption of new crop production methods. I: Number of growers who report adoption through surveys at educational events and meetings.
5	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.
6	Determine the extent of foot rot in advanced lines and currently grown barley and wheat cultivars.

Outcome #1

1. Outcome Measures

O: Producers gain knowledge about improved cereals management at cereal schools, field days, seminars, and re-certification events. I: Number of participants attending cereal schools, field days, etc.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	2845

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cereal producers and their crop advisors are concerned about management of new and resurgent pests. Interest is high in field scouting methods, economic injury levels, cultural and biological control, and judicious pesticide use.

What has been done
In 2017, a workshop at the North Idaho Pesticide Applicator Training provided IPM training to 36 commercial producers and affiliated industry field staff. Subject matter focus was basic entomology and IPM principles and practices.

Results
Workshop attendees increased their IPM knowledge by 29% (i.e. pre-tests averaged 35% correct answers, whereas post-tests averaged 64% correct answers, with 14 out of 18 attendees participating).

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
502	New and Improved Food Products

Outcome #2

1. Outcome Measures

O: Producers are aware of cereal resource publications. I: Number of cereal extension publications distributed or downloaded.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	727

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Results of the small grain variety trials are summarized each year. This information is important to north Idaho stakeholders along with private and public breeders throughout the Pacific Northwest.

What has been done
A summary of the 2016 small grain variety trials was published as a research bulletin: 2016 Small Grain and Grain Legume Report. This research bulletin is available from the Extension Publication office and is also posted on the North Idaho Variety Testing website. Likewise, new data generated from the 2017 growing season was posted to this website as the data became available allowing for timely decision making in the fall of 2017.

Results
North Idaho stakeholders and breeders receive current, objective information on new varieties and advanced breeding material that is being tested in northern Idaho. These results are vital to north Idaho stakeholders as they select varieties that will perform the best in their specific locations. For the breeders, this aids in identifying germplasm that is best suited for their region. This in turn will result in future varieties that will be specifically adapted to the growing conditions in northern Idaho, allowing growers to maximize yields while minimizing risk due to disease.

4. Associated Knowledge Areas

KA Code	Knowledge Area

202	Plant Genetic Resources
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
502	New and Improved Food Products

Outcome #3

1. Outcome Measures

O: Producers adopt new cereal varieties. I: Increase in number of acres of new varieties (released within 5 years; greater than previously grown).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	105

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
New varieties of wheat and barley are continually being developed by public and private breeders. The new varieties may have a number of beneficial traits such as improved disease resistance, better adaption to certain regions, higher yield and improved end-use quality. With new varieties being released by multiple sources, it can be difficult to select appropriate varieties. The north Idaho variety testing program provides an objective evaluation of these new varieties.

What has been done
Variety trials were conducted at various locations throughout northern Idaho. These included seven fall trials and eight spring trials of wheat and barley. The varieties were discussed at field days during June, and newly released varieties were highlighted at cereal schools in January. A summary was also prepared as a research bulletin, and articles were published in the Idaho Grain magazine.

Results
Growers, seed dealers, and breeders regularly refer to the results generated by the north Idaho variety testing program. The information on yield and other agronomic characteristics is useful to inform growers and seed dealers about these new varieties and to help them select the best variety or varieties for their area. The results also provide public and private breeders with

information on local and regional adaptability of their varieties. By having locations spread throughout northern Idaho in unique climates, the varieties are exposed to varying environmental conditions and diseases.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

Outcome #4

1. Outcome Measures

O: Adoption of new crop production methods. I: Number of growers who report adoption through surveys at educational events and meetings.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	99

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Soils in northern Idaho are gradually becoming more acidic, primarily due to the long-term use of ammonium-based fertilizers. As the soil pH declines, the risk of free aluminum, which is toxic to many crops in northern Idaho, increases. Aluminum toxicity can lead to reduced vigor and yield in most crops. While this is not an issue everywhere in northern Idaho, it is a growing issue that warrants attention.

What has been done
Field research plots were established to test high rates of lime. Trials were established to identify tolerance to aluminum toxicity in winter wheat. Research plots were highlighted in field days during the summer of 2017.

Results
The results from liming studies indicates that when applied at higher rates (two or more tons per acre) onto soils with low pH, crop performance and yield improve. The aluminum tolerance screening trials have yielded useful information on the susceptibility of varieties and advanced lines to aluminum toxicity. The preliminary information from these trials is being used to aid in

variety selection for fields that have a low soil pH and are stimulating growers to consider lime application to improve the soil pH and soil health.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #5

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Determine the extent of foot rot in advanced lines and currently grown barley and wheat cultivars.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A recognized barrier to cereal grain production under dryland conditions is limited water supply and nutrient-robbing fungi that infect stressed root and crown tissue.

What has been done

Field tests at the Aberdeen Research and Extension Center were conducted to test susceptibility to soilborne disease (foot rot) under water stress.

Results

The effect of inoculation of Fusarium culmorum (twenty different isolates) on early spring stand, whitehead formation, yield and test weight was significant. Varieties were ranked according to yield under disease and drought stress in mid- to late-season. The outcomes were the identification of advanced breeding lines and currently grown varieties with resistance. In addition, we identified the best lines to grow in areas with high disease pressure and water stress, thus, improving economic conditions for growers to reduce disease losses and reduce environmental impacts with less fungicide treatments.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Prices of wheat have impacted what growers want to talk about and how they apply fertilizers. They also want to talk about falling numbers, and the impact that this has on price as well. Growers also are dealing with a backlog of grain being stored until the price rises enough to sell and be profitable. They have issues with Fusarium Head Blight, rust, and other pathology issues. Other external factors include continued changes in operating costs and staying profitable.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

We conducted an end-of-session evaluation with participants at the Bonners Ferry Cereal School using survey instruments. Out of 16 participants, 11 of them responded. In total, participants reported that they owned or managed 14,700 acres.
In terms of whether their knowledge of cereal production increased as a result of attending this program, with 1 being no increase and 5 being a great increase, the average response was 3.9. All 11 respondents indicated that the information would be useful to them. On a scale of 1 to 5, with 1- being very good and 5- being very poor, respondents rated the course as 1.54 on average. All comments were positive on the program overall, citing it as a great program, having great speakers, doing good work, etc.

For those participants who had attended cereal schools in the past, all participants responded that the information they learned had influenced their management practices. For the participants in this specific cereal school, all but one indicated that the information would influence their management in the future.

As for future programs, respondents requested more information on wheat nutrition.

Key Items of Evaluation

My best impact story would be related to barley yellow dwarf (BYDV) disease. In 2017, all inquiries I had for BYDV were about disease management with cultural practices. Growers are now aware that delayed planting can be an effective approach in evading aphid infestations. This shows that our efforts in teaching BYDV management options during the 2015 and 2016 seasons were highly effective.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Commercial and Consumer Horticulture

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	15%		0%	
111	Conservation and Efficient Use of Water	15%		25%	
202	Plant Genetic Resources	8%		25%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%		0%	
204	Plant Product Quality and Utility (Preharvest)	10%		25%	
205	Plant Management Systems	25%		25%	
216	Integrated Pest Management Systems	20%		0%	
805	Community Institutions, Health, and Social Services	2%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	7.7	0.0	1.3	0.0
Actual Paid	9.9	0.0	1.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
192181	0	93497	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
192181	0	93497	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
650555	0	319404	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Horticulture team members reported 32,993 direct educational contacts and 4,021,432 indirect contacts made through Extension programs. Team members published six Extension publications and one refereed journal article, and they participated in projects supported by $47,428 in grant funds. Team members were active in 19 counties.
Junior Master Gardener classes were delivered in Canyon County in 2017. Ada, Canyon, and Kootenai counties delivered shorter, more accessible plant clinics and reached over 1,500 learners. Advanced Master Gardener classes and projects were delivered in five counties. Idaho faculty continued to host a regional Master Gardener conference attracting participants from Idaho, Montana, Utah, and Wyoming. Fourteen counties held classes for Master Gardeners in 2017.
Idaho Victory Garden courses were delivered in Blaine and Bonneville counties. These courses have now been taught for ten consecutive years and reached 70 people in 2017. The estimated potential value of food produced collectively in graduates' home gardens every year exceeds $300,000.
Outreach for commercial producers included collaborations with the Idaho Nursery and Landscape Association to provide instruction at the Green Collar College, the Turf, Tree and Landscape Conference, and various workshops for soils and integrated pest management.
Community classes and workshops reached thousands and included gardening classes, hands-on workdays, pesticide classes, food preservation, insect identification, bee keeping, seed and plant starting, vermiculture and composting, tree care, grafting, xeriscaping and landscaping, and more. Youth-related activities included 4-H presentations, a Junior Master Gardener class, and presentations at schools.
Supervised Master Gardeners and Advanced Master Gardeners delivered many presentations for local gardening groups and interested members of the public, served hundreds of residents who sought assistance in plant clinics, and contributed to dozens of community projects including school gardens and community gardens, community beautification, and parks and recreation projects. Extension professionals continued working with the Fort Hall Extension Horticultural program. This program's biggest successes of 2017 were the continuation and planting of a community garden and the planting of a raised gardening bed at the Fort Hall Housing Complex.
In one county alone, there were 12 active volunteers, six continuing Master Gardeners, and one advanced Master Gardener who contributed over 73 hours of teaching or service in the community through projects and plant clinics. Over 1,000 home garden clientele were assisted with research-based and environmentally responsible solutions to common garden and landscape issues. The Regional Master Gardener Convention in Rexburg had over 130 attendees from a multi-state region. It comprised 14 different classes, focusing on hands-on education in the demonstration gardens of the BYU-Idaho campus, including weed management and short season gardening. Community garden and food projects led by Master Gardener volunteers produced thousands of pounds of food for low-income residents in 2017.
Media outreach included regular contributions to local newspapers, local TV and radio interviews, targeted

newsletters and trade publications, and through social media. The Idaho Landscapes and Gardens Website remains relevant for thousands of users through ongoing updating, content management, and new contributions. A new website has been created as a resource guide to local producers as part of a Farm-to-Table dinner series. Specialized information for consumers is published by UI Extension faculty including an illustrated guide for entomology.

2. Brief description of the target audience

Master Gardener Education Project: The target audience for this project included Idaho citizens interested in expanding their gardening knowledge while educating others. The program is designed to develop volunteers capable of providing education that will have an impact on resources management and quality of life within communities throughout the state. Beginning Master Gardeners are required to participate in 30-70 hours of basic training in horticultural topics that include botany, basic soils, plant development, fertility, irrigation, plant problem diagnosis, pest control, etc., followed by 30-70 hours of volunteer service to the public. Advanced Master Gardeners become volunteer instructors and are expected to answer horticultural questions from the general public, assist in organizing workshops, conferences, and other education opportunities, develop public demonstration projects, and assist communities with plant-based improvement projects.
Consumer Horticulture Education Project: The target audience for this project included Idaho residents with an interest in home horticulture. This broad audience seeks opportunities to learn sustainable horticultural principles from numerous sources, including websites, publications, popular press articles, presentations, plant clinics, workshops, conferences, exhibits, short courses, Master Gardener Volunteers, and other teaching forums. In 2017, organized groups from this target audience included the Fort Hall Extension Horticultural program, tribal members and departments, community public works departments, garden clubs, community gardeners, civic groups, public libraries, school children, church groups, and other interested organizations including St. Alphonsus Hospital in Nampa and Boise, which requested gardening classes as a part of their employee wellness program.
Green Industry Education Project: The audience consisted of owners, managers, and employees of green industry companies taking an active role in recommending curriculum, organizing teaching opportunities, and working to become competent horticulturists. Examples include business and nursery workers and owners, garden retail stores and centers, landscapers, commercial tree and landscape plant producers, alternative crop producers, organic producers, Spanish-speaking workers, small truck farmers, pesticide applicators, and fruit producers. The team serves this audience via professional development training opportunities and technical assistance.
Fort Hall Extension Horticultural program: Target audiences included the community of Fort Hall, outlying Reservation districts, Tribal and non-Tribal adults, elders, families, and youth interested in producing their own food and learning more about horticulture, specifically tree selection and pruning as well as landscape design. Also targeted were Tribal departments that donated funding, labor, and time to develop several Fort Hall Horticultural Projects and the Fort Hall Community Garden.
Underserved Audiences: Current underserved groups include low-income, Hispanic, Native American, and immigrant populations. This includes the native and non-native community members on or near the Nez Perce and Fort Hall Indian Reservations.

3. How was eXtension used?

One team member developed an online eXtension class for the Idaho Victory Garden. It was delivered to more than 200 students.

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	28318	3985705	4675	35727

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	6	3	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Master Gardener-Advanced MG Workshops/Tours: faculty contribution to Advanced MG Training. Do not include beginning MGs. Multiple team members may contribute to a single event. Enter the number of Advanced MG training events you helped organize or during which you presented educational material.

Year	Actual
2017	106

Output #2

Output Measure

- Master Gardener-Beginning MG Courses Organized/Supervised: Number of MG courses (not classes within a course) organized/supervised by educators. Do not enter individual presentations made for basic MG training. Please enter the number of courses you organized or supervised during the past year.

Year	Actual
2017	29

Output #3

Output Measure

- Consumer Education-Public Outreach Pubs/Products: Number of faculty-authored press and Extension media products developed for consumers. Includes magazine articles, newspaper columns, newsletters or newsletter articles, radio or television spots. Enter the number of products developed/published during the past year.

Year	Actual
2017	161

Output #4

Output Measure

- Consumer Education-Websites: Statewide and county websites (faculty-authored) containing consumer-based horticultural information, developed or actively improved during the year. Enter only the number of actual websites (not individually-authored web products).

Year	Actual
2017	12

Output #5

Output Measure

- Consumer Education-Workshops, Seminars, Demonstrations, Field Days: Faculty contributions to consumer-based education events (exclude MG classes, reported elsewhere). Example: an event with one organizer and two faculty teachers would be reported by all three contributors. Enter the number of events.

Year	Actual
2017	203

Output #6

Output Measure

- Green Industy Education-Workshops, Seminars, Clinics: Faculty activity associated with green industry educational events. Each person involved in an event should record their contribution, resulting in a sum of team activity. Enter number green industry education events that you organized or at which you presented.

Year	Actual
2017	38

Output #7

Output Measure

- Master Gardener-Volunteer Hours: This metric reflects the time contributions of MG volunteers you directly supervise. Please enter the total number of hours contributed by all volunteers over the past year.

Year	Actual
2017	17252

Output #8

Output Measure

- Green Industry Education-Websites: Number of statewide or county web sites with green industry-targeted content developed or actively improved during the year. Do not enter authored content products. Enter the number of active sites.

Year	Actual
2017	4

Output #9

Output Measure

- Master Gardener-Direct Contacts with Stakeholders Made by Certified MGs: This metric reflects contacts made by certified MGs (in clinics, presentations, etc.) as opposed to those made by faculty. Please enter the number of direct contacts during the past year by volunteers you supervise.

Year	Actual
2017	59441

Output #10

Output Measure

- Master Gardener-Presentations to Beginning MGs: Measure of direct faculty contribution to beginning MG training other than course creation or organization. Enter number of presentations you made to beginning MG classes (face-to-face, distance, presentation of recorded materials that you personally prepared).

Year	Actual
2017	192

Output #11

Output Measure

- Master Gardener-Volunteer-Authored Pubs/Products: Report products developed by supervised MGs or other volunteers (exclude those with faculty authors): bulletins, fact sheets, web content, PowerPoint, media productions for radio or television. Enter number of products during past year.

Year	Actual
2017	170

Output #12

Output Measure

- Master Gardener-Volunteer MG Contributions to Workshops, Seminars, and Demonstrations:

Number of volunteers who organized or presented at educational events (regardless of whether a faculty member was involved). Multiple volunteers may be recorded for each event. Enter number of individual volunteer contributions.

Year	Actual
2017	388

Output #13

Output Measure

- Consumer Education-Scholarly Pubs/Products: Number of research-based, peer-reviewed scholarly products published by team faculty. Examples: journal papers, bulletins, CISs, or peer-reviewed web content or video productions. Enter the number of faculty-authored scholarly products published during the past year.

Year	Actual
2017	12

Output #14

Output Measure

- Increase in production and availability of native plant species for managed landscapes.

Year	Actual
2017	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Master Gardener- Training Courses: The desired outcome is a measurable increase in knowledge among new Master Gardener trainees in key topics covered by the Idaho Master Gardener curriculum. Indicator: One indicator of their potential to provide high quality service and information is the knowledge increase experienced by Master Gardeners during their training. This can be assessed by pre-and post-tests and self-assessments that measure the number of key topic areas (out of 25) in which their knowledge increased.
2	Consumer Education-Information Availability: Up-to-date, research-based, sound horticultural information is accessed by increasing numbers of Idaho consumers to inform and influence their horticultural practices. Indicator: The number of visitors to the comprehensive Idaho Landscapes and Gardens Website each year is one indicator of how many consumers are directly accessing our horticultural information.
3	Master Gardener-Program Operations. The desired outcome is statewide Master Gardener program that operates according to state policies, ensuring cohesion, program branding and quality. Indicator: One indicator is the number of Master Gardener programs statewide that operate according to written policy. Coordinators will be surveyed to determine the operational status of each county program. Team Leader will provide the final percentage.
4	Green Industry Education-Certification Training. The desired outcome is green industry personnel with sufficient knowledge to pass public certification exams. Indicator: The Hort Team offers training in preparation for taking the Certified Nursery Professional exam. The number of participants passing the exams after Extension training is an indicator of program success.
5	Master Gardener-New Certification: The desired outcome is a pool of newly trained Master Gardener volunteers to maintain or extend efforts in home horticulture outreach. Indicator: A stable or growing count of newly certified Master Gardeners is an indicator of program sustainability. Enter the number of new Master Gardeners certified during the past year.
6	Master Gardener-Retention of MG Volunteers: The desired outcome is a pool of returning trained, qualified, certified Master Gardener volunteers available for service within communities and counties statewide. Indicator: This is a measure of the effectiveness of ongoing Master Gardener training and retention programs. Enter number of active, certified Master Gardeners and Advanced Master Gardeners currently serving in your county(ies).
7	Increase in production and availability of native plant species for managed landscapes.

Outcome #1

1. Outcome Measures

Master Gardener- Training Courses: The desired outcome is a measurable increase in knowledge among new Master Gardener trainees in key topics covered by the Idaho Master Gardener curriculum. Indicator: One indicator of their potential to provide high quality service and information is the knowledge increase experienced by Master Gardeners during their training. This can be assessed by pre-and post-tests and self-assessments that measure the number of key topic areas (out of 25) in which their knowledge increased.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	49

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Questions about insect identification and management are among the most common problems that Master Gardeners are called upon to answer. Most beginning Master Gardeners lack the technical subject-matter knowledge to correctly answer such questions.

What has been done
Since 2005, short-term logic model outcomes (i.e., gains in audience knowledge) have been quantitatively measured via pre-post testing of beginning Master Gardeners at workshops. Wireless audience response cards have been utilized since 2012 as alternatives to written tests used during prior years.

Results
Short-term outcomes were highly positive. Pre-post tests conducted via wireless audience response cards (n=173 people participating at 7 venues in Idaho and Washington) showed that average gain-in-knowledge (computed as the difference between pre- and post-workshop audience test scores) was 41% (i.e. from 34% correct answers pre-test to 75% correct answers post-test). Further, all participants said they intended to adopt at least one of the IPM practices discussed at these workshops. Audience responses to the post-workshop evaluation item "List one idea you plan to put into practice" centered on identification of pests and beneficial insects, as well as use of biorational insecticides. A representative sample of written replies for the same question included the following: plant diverse flowers to attract more beneficial predators and parasitoids; read the [pesticide] labels for: Caution, Warning and Danger; and use insects to control bad bugs rather than killing all bugs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

Consumer Education-Information Availability: Up-to-date, research-based, sound horticultural information is accessed by increasing numbers of Idaho consumers to inform and influence their horticultural practices. Indicator: The number of visitors to the comprehensive Idaho Landscapes and Gardens Website each year is one indicator of how many consumers are directly accessing our horticultural information.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	86880

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Idaho's citizens require timely information to increase personal food production, learn about sustainable gardening and landscaping practices, and improve the green spaces in their lives.

What has been done
The Idaho Landscapes and Gardens website was developed to provide easy public access to high quality horticultural information. In 2014, about half of the site content was updated and revised to reflect the most current and correct gardening and landscaping information.

Results
With over 85,000 visits in 2017 to this website, general access to information and adoption of best practices has improved among Idaho citizens for topics related to landscape and garden management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Master Gardener-Program Operations. The desired outcome is statewide Master Gardener program that operates according to state policies, ensuring cohesion, program branding and quality. Indicator: One indicator is the number of Master Gardener programs statewide that operate according to written policy. Coordinators will be surveyed to determine the operational status of each county program. Team Leader will provide the final percentage.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Master Gardeners provide community outreach related to gardening, stewardship, increased understanding of the role of insects in gardening, and plant problem identification. Master Gardeners can identify noxious weeds and invasive species, and they can advise neighbors as to research-based advice that they have learned through the program.

What has been done
Counties served with standardized Master Gardener programs include Ada, Bonneville, Bonner, Boundary, and Canyon.

Results
Fifty-nine individuals completed Master Gardener courses that followed state guidelines. Master Gardeners receive superior training and give superior volunteer service resulting in more

substantial impacts which align with the outcomes on the program's logic model reporting.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

Outcome #4

1. Outcome Measures

Green Industry Education-Certification Training. The desired outcome is green industry personnel with sufficient knowledge to pass public certification exams. Indicator: The Hort Team offers training in preparation for taking the Certified Nursery Professional exam. The number of participants passing the exams after Extension training is an indicator of program success.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Owners and managers in green industries require trained personnel to be competitive.

What has been done
In the Master Gardener program, a handful of seats were saved for green industry workers, and these students were allowed to take the course by audit.

Results
Two green industry workers completed the class.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources

203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #5

1. Outcome Measures

Master Gardener-New Certification: The desired outcome is a pool of newly trained Master Gardener volunteers to maintain or extend efforts in home horticulture outreach. Indicator: A stable or growing count of newly certified Master Gardeners is an indicator of program sustainability. Enter the number of new Master Gardeners certified during the past year.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	133

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Home owners need advice on their garden and landscape problems. Certified Master Gardeners function as a distributed volunteer consulting team spread throughout the community.

What has been done
A 12-week Master Gardener course was offered in 2016 and 2017. There were seven people certified in 2016 and 10 in 2017. The 2016 results are reported this year as the certification process is completed in November. Some of the Master Gardener course participants worked in the plant clinic once to twice per week. They also volunteered over 1,000 hours of time in their community or county.

Results
Master Gardeners helped solve approximately 40 different plant problems in the office and consulted with neighbors and community members throughout the county to help them learn to garden and become better gardeners.

4. Associated Knowledge Areas

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

111	Conservation and Efficient Use of Water
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
805	Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Measures

Master Gardener-Retention of MG Volunteers: The desired outcome is a pool of returning trained, qualified, certified Master Gardener volunteers available for service within communities and counties statewide. Indicator: This is a measure of the effectiveness of ongoing Master Gardener training and retention programs. Enter number of active, certified Master Gardeners and Advanced Master Gardeners currently serving in your county(ies).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	328

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Establishing a good pool of volunteers is important for running a cohesive program from one year to the next. Returning Master Gardeners are very valuable for helping in plant clinics, as they will have likely seen many of the same questions in previous years. Also, they are helpful in training new volunteers for the plant clinic.

What has been done
Idaho Master Gardeners were given an additional 20 hours of advanced training. An IPM team, social media team, and tree team were created with specialized instruction in each category to aid them in providing diagnosis and treatment recommendations for clients and providing outreach via social media forecasting pest events.

Results
Master Gardeners support several of the community gardens and share best practices on Facebook while they are working in the gardens. This year, there were over 190 Master

Gardeners who volunteered their time and maintained or advanced their certifications.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
805	Community Institutions, Health, and Social Services

Outcome #7

1. Outcome Measures

Increase in production and availability of native plant species for managed landscapes.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Nursery managers in different parts of Idaho are seeking more solid information on propagation and field or container production practices for native plants.

What has been done
Developed plant tissue culture techniques that could be used to propagate a dwarf selection of western serviceberry and a small herbaceous plant called firechalice.

Results
The release of two native plant varieties were produced faster through tissue culture propagation rather than conventional plant propagation methods and could allow for a nursery to sell up to

$20,000 worth of new native plants in 2018.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Summer field work - USFS employees working schedule, fire season conflicts with garden season)

Brief Explanation

Climate change has impacted the ability of gardeners to grow, as well as the occurrence of disease, insects, and pests. This year saw a winter and spring with record precipitation followed by a summer with a record number of days above 90º F. This has presented a challenge to gardeners. Extension horticulture programming, as well as Master Gardener Volunteers, were able to provide resources to aid gardeners in gardening sustainably even in the face of a changing climate and the resulting increase in pest problems in the garden. One example is the IPM team run by volunteers. When degree-day models predicted pest emergence, an alert predicting pest emergence was sent to subscribers of the PNWPestAlert.net service. Volunteers scouted at locations throughout the county. When pests were trapped or scouted, alerts were sent out confirming pest emergence. Knowing how climate has impacted the emergence of pest allowed gardeners to adapt their gardening practices accordingly and provided them with information on proper management skills allowing them to be more sustainable and successful in their pursuit of gardening.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

At the Fort Hall Indian Reservation, evaluations consisted of a questionnaire designed to assess knowledge before and after each specified class. Participants were also encouraged to list other program ideas and provide additional comments. When asked to evaluate outcomes at the end of the program, the percent increase in knowledge in each class was as follows:

- 'Weeds and Weed Control' (n = 13 with a 64% increase in knowledge);
- 'Tree Selection, Planting and Pruning' (n = 26 with a 43% increase in knowledge);
- 'House Plants and Outdoor Flower Pots' (n = 26 with a 67% increase in knowledge);
- 'How to Garden and Vegetable Gardening Specifics' (n = 29 with a 67% increase in knowledge); and
- 'Insect and Insect Control' (n = 29 with a 71% increase in knowledge).

Key Items of Evaluation

In Lemhi County, Master Gardener classes are offered every other year. Our local foods group is very education oriented, but they realized that having people come to workshops in the spring and summer was not realistic even though that is when there are a lot of things to be learned. Based on the success of another Extension educator in reaching young mothers with educational information, we borrowed the idea of using Facebook Live. Our target audience included people who like to garden and are small acreage landowners. We decided to broadcast two times per month at 7:30 a.m. on Thursdays. Members of the group were knowledgeable and willing to present on a variety of topics. The Extension educator and an intern managed the technology and camera. Our topics included lasagna beds, apples, pruning tomatoes, braiding garlic, kids in the garden, managing for weather, making infused oils, outdoor washing sinks, and raising poultry. We reached 9,071 people and had 3,366 views!

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Community Development

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
124	Urban Forestry	2%		0%	
131	Alternative Uses of Land	5%		0%	
134	Outdoor Recreation	5%		0%	
601	Economics of Agricultural Production and Farm Management	5%		0%	
602	Business Management, Finance, and Taxation	3%		10%	
603	Market Economics	3%		0%	
604	Marketing and Distribution Practices	3%		0%	
605	Natural Resource and Environmental Economics	5%		20%	
608	Community Resource Planning and Development	10%		20%	
610	Domestic Policy Analysis	8%		0%	
802	Human Development and Family Well-Being	20%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%		30%	
805	Community Institutions, Health, and Social Services	15%		0%	
806	Youth Development	3%		0%	
903	Communication, Education, and Information Delivery	3%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	4.5	0.0	2.0	0.0

Actual Paid	5.0	0.0	1.6	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
175594	0	151492	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
175594	0	151492	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
196514	0	565442	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 6,324 direct educational contacts and 87,942 indirect contacts. Team members published four articles in refereed journals and one Extension publication, and they participated in projects funded by $166,848 in grants. Team members were active in 12 counties.
Extension faculty delivered a variety of educational programs for local leaders and entrepreneurs in 2017. Courses including Color Code Team Building, Personality Compass, and Kitchen Food Business brought a range of experts into communities to improve understanding and participants' decision-making skills. Workshops in 2017 focused on marketing, financial management, computer basics, team building, and food safety.
Other activities involved topics such as youth entrepreneurship, accessing higher education, promoting small business, local food systems, food security, bioregional planning, and youth and adult leadership. One team member organized a four-day event to help 40 Nez Perce women come together in their art of writing literature and learn how to become published.
Extension faculty served on local economic development boards and mentored local business start-ups. They also participated in regional economic development partnerships, including the Clearwater Economic Development Association. Statewide partnerships include the Area Sector Analysis Process, the Small Business Development Center, and the Idaho Rural Partnership (IRP).
Team members participated in community meetings with county commissioners, chambers of commerce, state legislators, and city arts commissions. For example, UI Extension members worked with the Big Creek, Yellow Pine, Salmon River Forest Collaborative and the America's Best Communities Collaborative offering leadership development, strategic planning, and facilitation services to multiple stakeholders.
In 2017, one member worked with students and the Lapwai Community Action Team to develop signage for the City of Lapwai. Due to the designation of the Lewis-Clark AVA (American Viticultural Area), an effort to assess site potential in the Clearwater Valley has been undertaken. Extension faculty conducted Ripple Effects Mapping exercises in Glenns Ferry, Fairfield, and American Falls, as well as with the Vandal Health Coalition.

2. Brief description of the target audience

Target audiences include:

- Business owners and industry leaders

- Economic development professionals and community action team leaders
- Government agency personnel, including social services, law enforcement, and first responders
- Entrepreneurs, both current and future
- Elected officials and decision makers at state and local levels
- Community nonprofit organizations
- New leaders and individuals currently serving in leadership roles
- Local stakeholders
- Producers forming a partnership to strengthen their local food system (food co-op development)
- Rural communities
- Community and county educators and administrators
- High school students, college students, and youth
- Elders and citizens
- Faith-based leaders, youth, and adults
- Librarians
- Underserved populations including Hispanic women, Native Americans, and those challenged with historical poverty and historical trauma

In 2017, Idaho, Montana, and Wyoming community assessment delivery organizations were target audiences for a project on community assessment best practices and evaluation. These include Idaho Rural Partnership, Montana Economic Developers Association, and Wyoming Business Council. Rural community groups and residents in the three states are the ultimate target audience for this work and for the team's community conversation project as well.

3. How was eXtension used?

One team member conducted a training on Ripple Effects Mapping at the national eXtension conference in San Antonio, TX.

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	5457	87251	867	691

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total

Actual	1	15	17

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Steering Committees/Teams formed

Year	Actual
2017	4

Output #2

Output Measure

- Materials/Curriculum developed

Year	Actual
2017	4

Output #3

Output Measure

- Presentations/Workshops delivered (one shot)

Year	Actual
2017	28

Output #4

Output Measure

- Series/Short Courses/workshops - organized and/or taught

Year	Actual
2017	11

Output #5

Output Measure

- Conference posters/presentations

Year	Actual
2017	14

Output #6

Output Measure

- Boards & Communities - Facilitated/Mentored/Coached

Year	Actual
2017	19

Output #7

Output Measure

- Communities served

Year	Actual
2017	22

Output #8

Output Measure

- Counties served.

Year	Actual
2017	33

Output #9

Output Measure

- Web-based educational materials

Year	Actual
2017	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Entrepreneurs: Current & future Idaho Entrepreneurs learn business practices and develop skills needed for starting a business. I: Number of participants learning skills
2	O: Customer: Small business owners and government organizations adopt customer oriented operating practices Indicator: Number of participants indicated adoption of practices. (customer service follow-up checklist)
3	O: Leadership: Incumbent and emerging leaders learn skills for community leadership positions. I: Number of participants with increased skills (pre/post test)
4	O: Leadership: New leaders will assume leadership roles. I: Number of new leaders serving in communities. (1 yr. follow up checklist/count)
5	O: Family Life: Users of web-based family life materials find useful information that addresses their needs. I: Number of participants accessing the materials who rate the information as useful.
6	O: Human capital development. I: Youth gain understanding of post-high school educational opportunities. (Retrospective pretest)
7	O: Regional business development: Economic and business development organizations collaborate at a regional level to offer comprehensive business training and support to local communities. I: Number of regions, counties, or clusters of communities establishing a regional business development effort. (Retrospective Post)
8	O: Social Capital Development: Community Partnerships will be developed through community networks and mentoring. I: Number of participants in network and mentoring relationships.
9	O: Spaces and Places: Student teams will develop design concepts that meet community planning and design needs. I: Completed design project.
10	O: Entrepreneurs: entrepreneurs establish or expand their businesses. I: Number of business owners extablishing or expanding their business. (Annual survey/3yrs.)

Outcome #1

1. Outcome Measures

O: Entrepreneurs: Current & future Idaho Entrepreneurs learn business practices and develop skills needed for starting a business. I: Number of participants learning skills

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	33

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many small business owners lack the technology skills to effectively run a business.

What has been done
Microsoft Excel classes for small businesses were developed and taught in two locations.

Results
Twenty participants completed the Microsoft Excel class, and the class was rated as "very good" by those attending.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
903	Communication, Education, and Information Delivery

Outcome #2

1. **Outcome Measures**

O: Customer: Small business owners and government organizations adopt customer oriented operating practices Indicator: Number of participants indicated adoption of practices. (customer service follow-up checklist)

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

O: Leadership: Incumbent and emerging leaders learn skills for community leadership positions. I: Number of participants with increased skills (pre/post test)

2. **Associated Institution Types**

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	35

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Investing in leadership development increases a community's capacity to respond, anticipate and adapt to constant local, national, and world changes.

What has been done
The Leadership to Make a Difference Institute (LMDI) was delivered to 15 librarians from rural areas in northern Idaho and to 12 members of a youth/adult coalition to create a healthy, drug-free community in Kamiah. The LMDI is a two-day intensive training for existing and emerging leaders to develop and refine their basic leadership skills. The program is designed to assist people in developing confidence in their own leadership abilities and the courage to take action addressing community issues.

Results
At the end of the training, the Idaho Commission for Libraries (ICFL) requested the training be repeated in southern Idaho in November 2017 and in eastern Idaho in spring 2018. Ninety-three percent of participants somewhat agreed/agreed they were likely to apply what they had learned; 86% somewhat agreed/agreed they were confident about using what they had learned/ and 71%

somewhat agreed/agreed the instruction would improve their library's ability to provide services for the public.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

O: Leadership: New leaders will assume leadership roles. I: Number of new leaders serving in communities. (1 yr. follow up checklist/count)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Leadership skills used to lead local community development efforts are widely reported to be lacking in small communities. A few people fill the majority of leadership positions in a community.

What has been done
A local group of individuals was organized to direct, guide, and establish the Meadows Valley Community Garden Project.

Results
In the first growing season, 100 pounds of food was grown in a rural food desert. New leaders have been brought into the process and capacity building is underway.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services
903	Communication, Education, and Information Delivery

Outcome #5

1. Outcome Measures

O: Family Life: Users of web-based family life materials find useful information that addresses their needs. I: Number of participants accessing the materials who rate the information as useful.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
It is important to provide research-based practices for families of young children to rely upon to parent their children appropriately.

What has been done
The "Just in Time Parenting" newsletter was promoted throughout the state, resulting in approximately 100 families subscribing.

Results
These 100 families received 6-12 newsletters per year matched to their childrens' ages.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Measures

O: Human capital development. I: Youth gain understanding of post-high school educational opportunities. (Retrospective pretest)

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

O: Regional business development: Economic and business development organizations collaborate at a regional level to offer comprehensive business training and support to local communities. I: Number of regions, counties, or clusters of communities establishing a regional business development effort. (Retrospective Post)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Regional collaboration through the America's Best Community (ABC) Contest took place to address shared challenges and build leadership and capacity throughout the West Central Mountain region of Idaho. One of the initiatives resulting from this collaboration was the Area Sector Analysis Process (ASAP) in partnership with the Western Rural Development Center. This study looked at the compatible and desirable industry sectors for the region to address sustainable economic development solutions for the region.

What has been done
Two steering committees were formed to work on ABC and ASAP. The ABC contest was completed in April 2017; however, leadership for the 21 related initiatives continues to move projects forward. The ASAP steering committee was dissolved in February 2017 once the study was completed; however, the results of this study are currently being presented to county commissioners, city councils, and the West Central Mountains Economic Development Council (WCMEDC).

Results
The findings of this report have been presented to citizens in leadership roles for the region including county commissioners, city councils, and the WCMEDC. The results of this study can be used to update strategic plans and comprehensive planning documents as a short-term goal. The long-term goals are yet to be seen; however, they might include decisions made by local leadership to develop assets and community infrastructure to support current and potential businesses.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

Outcome #8

1. Outcome Measures

O: Social Capital Development: Community Partnerships will be developed through community networks and mentoring. I: Number of participants in network and mentoring relationships.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In early 2017, the Teton Valley Kitchen (TVK) opened to the public to enable food entrepreneurs to use shared resources in a licensed facility to grow small businesses. While a 2016 feasibility study indicated that the TVK was feasible, the TVK had limited resources to offer educational support for food entrepreneurs and other prospective users of the space.

What has been done
In the spring of 2017, the UI Extension Educator from Teton County received a small UI Extension Community Development Grant to begin offering educational classes for food entrepreneurs at the TVK. With partners from local, state, and federal organizations and agencies, four classes were conducted between July and October 2017. This helped to connect agriculture and value-added, specialty food producers with mentoring and support.

Results
As a result, there is increased positive momentum for the TVK's success. More food producers are connected to each other, creating increased opportunities for collaboration and learning. In addition, other communities and organizations have reached out to the UI Extension Educator seeking information about the progress of the kitchen and food business educational offerings. While the TVK location on Main Street closed in recent weeks, the TVK is set to re-open at the Teton County Fairgrounds in 2018. Further, newly identified food producers who attended the 2017 trainings and utilized the TVK are now following the progress of the Teton Food and Farm Coalition (a food and agriculture coalition facilitated by Teton County Extension staff).

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
610	Domestic Policy Analysis
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services
806	Youth Development

Outcome #9

1. Outcome Measures

O: Spaces and Places: Student teams will develop design concepts that meet community planning and design needs. I: Completed design project.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many small towns lack adequate wayfinding for visitors. It is important to be welcoming so that visitors can easily find businesses and activities and are encouraged to stay longer and contribute more to the local economy.

What has been done
Graduate students in bioregional planning and community design developed a wayfinding plan for Lapwai, Idaho.

Results
The community now has a plan that can provide direction for grant writing and community action.

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry
131	Alternative Uses of Land
134	Outdoor Recreation
608	Community Resource Planning and Development
903	Communication, Education, and Information Delivery

Outcome #10

1. Outcome Measures

O: Entrepreneurs: entrepreneurs establish or expand their businesses. I: Number of business owners extablishing or expanding their business. (Annual survey/3yrs.)

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Climate change will continue to impact Idaho's communities, and these impacts are anticipated to become more severe because public policy is largely failing to address human causes of climate change. Competing interests and public priorities (e.g., short-term financial gain versus long-term sustainability) are the primary reason for this failure. In addition to adverse economic impact generated by climate change, rural communities continue to be impacted by consolidation in agriculture, increased mechanization that

requires fewer workers, and limited economic opportunities, especially in the smallest and most remote communities.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Communities in the West Central Mountains (WCM) of Idaho are small and remote. Regional collaboration is essential to increase the capacity of each community to make the area more resilient and competitive for outside funding sources. The rural communities in the WCM of Idaho have had difficulties working together in the past. In the WCM, a post-program reflection was given after the completion of the America's Best Communities (ABC) and Area Sector Analysis Process (ASAP) regional collaborations. Overall, these initiatives were well received and potential feedback for future initiatives was collected. About 85% of the participants in the ABC Regional Collaborative met 10 or more new people from being involved with this project. This demonstrates the potential for regional social capital building in the WCM. The results for the ASAP study were shared with the WCM Economic Development Council to move this process forward.

Key Items of Evaluation

In Salmon, Idaho, the Community Dinner Table program was set up to provide a free hot meal once a month. The event was designed to be open to the public and reduce stigma associated with free food distribution. The dinners average 200 attendees per meal, with a high of 350 at the December dinner. A survey was conducted by the planning team, and it was discovered that many participants attended for the conversation and to meet new people. Participants reported that they felt a greater sense of community, more belonging, and more community involvement. Many reported they felt welcome in the community. Over seven organizations have stepped in to host the dinners providing all the food and labor for the events.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Global Food Security and Hunger: Dairy

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	20%		20%	
302	Nutrient Utilization in Animals	20%		20%	
305	Animal Physiological Processes	20%		20%	
307	Animal Management Systems	20%		20%	
308	Improved Animal Products (Before Harvest)	0%		10%	
311	Animal Diseases	20%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.9	0.0	2.5	0.0
Actual Paid	3.0	0.0	2.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
183421	0	105853	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
183421	0	105853	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
78329	0	891887	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 7,181 direct educational contacts through Extension and 115,100 indirect contacts. Team members published three articles in refereed journals and participated in projects funded by $148,753 in grants. Team members were active in 6 counties.

Dairy Management

Maintaining production efficiency and profitability continues to be a challenge for the Idaho dairy industry. Management techniques are available to improve facility planning, reproductive efficiency, herd nutrition, feed identification, genomics, dairy housing, lameness, electrical resistance, milk quality, mastitis control, cow comfort, production costs, market outlook, and dairy margin protection. Based on input from our dairy advisory committees, the Idaho Dairy Extension team conducts dairy tours, on-farm trainings, and producer meetings to share new strategies and provide support.

The team organized a dairy goat and sheep workshop featuring international and local experts as presenters. The team supplied programs and research for the Idaho Dairy Herd Improvement Association's Dairy Goat annual meeting. The team continued to run collaborative multi-institutional dairy genomics and fertility workshops. One team member also participated in a conference in Mexico titled Congreso Internacional Biologia, Quimica, y Agronomía.

Dairy Workforce Development

Dairy topic team members have continuously developed, improved, and delivered training for dairy workforce development. New emphasis has been placed on dairy middle management training including a roundtable in Spanish. Topics covered in a Spanish-language milker school included milking systems, milk quality and the Pasteurized Milk Ordinance (PMO), milker responsibilities, and biosecurity and farm safety procedures.

The increase in Hispanic worker employment in Idaho's dairy industry prompted dairy Extension faculty to develop some trainings in both English and Spanish. Bilingual trainings improve the knowledge and skills of these workers, and include artificial insemination (AI) schools, milker schools, and a Hispanic workers' protection and safety program.

Other examples of activities include ABS Global, Inc. Reproductive Management Systems (RMS) workshops, the Waste to Worth Conference, and an Argentinean agricultural student dairy tour in the Magic Valley.

2. Brief description of the target audience

The team's audience is focused on developing and delivering a diverse training program targeting Spanish-speaking dairy employees. Support is also provided to English speakers, dairy producers, veterinarians, veterinarian students, employees of AI companies, middle-herd managers, and members of allied industry including ABS. Audience venues include farm visits, dairy meetings, and DAIReXNET (for producers, allied industry, and Extension). The dairy industry and Idaho power companies are the target audiences for the team's stray voltage research.

3. How was eXtension used?

Dairy team members contributed to DAIReXTNET, and one team member is the lead editor for the facilities section of DAIReXTNET.

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	7125	115000	56	100

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	6	6

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Winter Dairy Forums

Year	Actual
2017	1

Output #2

Output Measure

- Milker schools

Year	Actual
2017	5

Output #3

Output Measure

- Calf Schools

Year	Actual

2017	0

Output #4

Output Measure

- Artificial Insemination Schools

Year	Actual
2017	6

Output #5

Output Measure

- Feeder Schools

Year	Actual
2017	0

Output #6

Output Measure

- Popular Press articles

Year	Actual
2017	2

Output #7

Output Measure

- Abstracts and Proceedings

Year	Actual
2017	14

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Dairy Producers and workers will increase knowledge by attending dairy schools and dairy forums. I: Number attending schools.
2	O: Dairy workers will increase knowledge and understanding of dairy management practices. I: Percent knowledge change by attendees (as evaluated with pre/post testing)
3	O: Sound dairy management practices will be adopted by dairy operations as a result of attending the management schools. I: Percent of participants with intent to adopt recommended dairy management practices (as evaluated with pre/post testing).
4	O: Dairy workers will use proper techniques taught in dairy education programs (e.g., AI techniques, feeding adjustments, milking techniques). I: Percent of participants demonstrating mastery (assessed at dairy education programs)
5	Increase milk yield and milk fat content in dairy cows without affecting reproductive parameters.

Outcome #1

1. Outcome Measures

O: Dairy Producers and workers will increase knowledge by attending dairy schools and dairy forums. I: Number attending schools.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	246

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Efficient reproduction is key to dairy profitability.

What has been done
Dairy genomics workshops were held in a variety of locations.

Results
All participants of the dairy genomics workshops and presentations reported that they had gained new knowledge following attendance at the workshops and presentations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
305	Animal Physiological Processes
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases

Outcome #2

1. Outcome Measures

O: Dairy workers will increase knowledge and understanding of dairy management practices. I: Percent knowledge change by attendees (as evaluated with pre/post testing)

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

O: Sound dairy management practices will be adopted by dairy operations as a result of attending the management schools. I: Percent of participants with intent to adopt recommended dairy management practices (as evaluated with pre/post testing).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a distinct lack of available training for dairy middle-herd managers.

What has been done
The dairy middle-herd managers training and roundtable program was re-initiated.

Results
Middle managers managing collectively more than 180,000 cows in Idaho attended the program and increased their knowledge, as well as expressed their intent to adopt new practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
307	Animal Management Systems

308	Improved Animal Products (Before Harvest)
311	Animal Diseases

Outcome #4

1. Outcome Measures

O: Dairy workers will use proper techniques taught in dairy education programs (e.g., AI techniques, feeding adjustments, milking techniques). I: Percent of participants demonstrating mastery (assessed at dairy education programs)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	53

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Milkers need recurrent training to avoid procedural drift and to learn proper techniques when new or changing operators.

What has been done
Two milker schools were offered on dairies.

Results
The 30 participants increased their knowledge and expressed intent of using learned techniques. Somatic cell counts were down in one of the dairies after the program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases

Outcome #5

1. Outcome Measures

Increase milk yield and milk fat content in dairy cows without affecting reproductive parameters.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Optimizing cow management through improved feeding strategies play an important role in productivity and profitability for dairy cow producers. Spray-dried plasma (SDP) proteins are recognized as safe, high-quality feed ingredients for livestock due to their immune modulatory components, including immunoglobulins, bioactive peptides and growth factors.

What has been done
998 pregnant Holstein cows 260 days pregnant were enrolled in a randomized design and fed SDP and blood meal.

Results
Milk yield improvement in SDP cows was evident during the second month of lactation and onwards. Substitution of feeding BM with SDP in dairy cows increased milk yield and milk fat content without affecting reproductive parameters.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Competing Programmatic Challenges
- Other (No money received for Idaho Dairymen Association)

Brief Explanation

We lost operating expense and travel support from the Idaho Dairyman's Association (IDA). They changed priorities and hired an individual to do on-farm safety training after a year with two workers dying due to work-related accidents. There was a shift in focus to conducting stray voltage research, a targeted priority of the IDA.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The Idaho dairy industry specifically requested that I guide them in their initial evaluation of the current stray voltage testing protocol, and that I conduct a preliminary study. Electrical resistance was measured on a commercial dairy, and I presented the results to the IDA board and at the annual American Dairy Science Association. I requested funding to conduct additional research on the electrical resistance of cattle at the University of Idaho dairy in Moscow.
Key results from our research include: 1) the hooves of Idaho cows have lower electrical resistance due to living in a wet floor environment in both cattle housing and the milking parlor; 2) dry hair coats have very high electrical resistance which protects the cow from low-level currents from stray voltage; 3) cows with wet-to-the-skin hair coats have electrical resistance well below the state standard of 500 ohms; 4) standing in one-inch deep manure slightly reduces the resistance of cows compared to a skim of manure on the floor; 5) standing on concrete slightly increases resistance versus standing on metal grids, 6) adding up to 25% sand or compost bedding to manure had minimal effect on resistance; and 7) resistance of the mouth to 4-hoof pathway is significantly higher when measured while the cow is drinking water than with artificial connections to the cow with nose tongs or a horse bit. We will conduct further investigations on commercial farms to add further support for reducing the shunt resistor used in measuring stray voltage on dairy farms.

Key Items of Evaluation

My best impact story is related to the dairy goat and sheep workshop, where participants keep asking to maintain these as an annual event. Participants were outspoken about the knowledge gain, networking opportunity, and resources made available during and after the workshop. One of the participants offered to sponsor next year's event to partially cover costs.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Family Finance

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	5.9	0.0	0.0	0.0
Actual Paid	4.9	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
71444	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
71444	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
162578	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The family finance team taught 7,042 direct learners, reported reaching 69,470 indirect contacts, and participated in projects supported by $75,000 in grant funds.

The family economics team created and delivered dozens of presentations for a variety of audiences. Adult education was delivered across the state via multiple programs, workshops, and classes. Topics centered on financial management skills and included budgeting, credit management, recordkeeping, women's financial management, health care insurance, Medicare, late-in-life financial issues, planning retirement, decluttering and downsizing, and protecting against identity theft. One team member partnered with the AARP New Knowledge Adventures program, and this helped to create an innovative method to increase program awareness and participation. Team members were active in nine counties.
Another team member has been teaching a series of financial and life-skill workshops to a low-to-no-income group of moms from the Palouse Care Network, working with Head Start families and providing coaching services to indigent groups through St. Vincent DePaul Ministries and the Hope Center.

2. Brief description of the target audience

This team's target audience included people of all ages. Examples include: 4-H members, adult 4-H volunteers, county residents, Head Start counselors and parents, low-income individuals, AARP, senior centers, clubs, associations, teachers, parents, youth group leaders, after-school youth, school-age youth, general public, Hispanics, college students, inmates, retirees, elderly, credit union league members, mentally/physically disabled, and family business owners.
The Basic Financial Management target audience included young adults, people who are new to financial management (i.e., widows, divorcees, immigrants), and individuals who needed to improve their financial management practices. Train-the-trainer activities target professionals who work with people with low income and/or financial challenges.
The Financial Security in Later Life target audience included adults of all ages planning for their own financial future, as well as adults who are caretakers of elderly relatives and friends. Train-the-trainer activities targeted professionals who serve elderly clients.
The Youth Financial Literacy target audience included youth teachers, librarians, youth group leaders, and parents.

3. How was eXtension used?

One team member participates in the leadership team for the Financial Security community of practice.

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4696	68260	2346	1210

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Newsletter articles published; print or electronic

Year	Actual
2017	18

Output #2

Output Measure

- Popular Press articles

Year	Actual
2017	12

Output #3

Output Measure

- Professional or paraprofessional trainings

Year	Actual
2017	35

Output #4

Output Measure

- Classes, seminars, and workshops

Year	Actual
2017	173

Output #5

Output Measure

- Websites developed or updated

Year	Actual
2017	2

Output #6

Output Measure

- Lesson/curricula developed, published, distributed

Year	Actual
2017	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Participants increase awareness of effective financial management practices. I: Number of participants reporting awareness on end-of-class evaluations.
2	O: Participants gain new personal finance knowledge. I: Knowledge gain reported on end-of-program evaluations.
3	O: Participants adopt recommended financial practices. I: Participant responses on end-of-program and follow-up evaluations.
4	O: Extension personal and family finance information is accessible to clientele, including new audiences, through Extension web sites, social media, webinars, and use of technology, and information displays. Indicator: Number of website sessions and pages visited. Number of social media followers. Number of participants in Adobe Connect, chat, webinars, or other trainings offered via technology. Number of people receiving information from displays.
5	O: Participants intend to adopt recommended financial practices. Indicator: Participant responses on end-of-program and follow-up evaluations.
6	O: Participants will share awareness, knowledge gained, and resources with others following the train-the-trainer model. Indicator: Number of total people reached with personal and family finance information.

Outcome #1

1. Outcome Measures

O: Participants increase awareness of effective financial management practices. I: Number of participants reporting awareness on end-of-class evaluations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1076

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
U.S. residents like to store "stuff." The self-storage industry is primarily located in the United States. In 2009, of the 58,000 storage facilities, 46,000 were on U.S. soil. The market was clearing $6.6 billion in profits on the more than 2.35 billion square feet of rented space. This number has grown every year. So what is the problem? People are over-burdened with their stored possessions and the unnecessary expense they cause, an expense that could be erased with some strategic organization.

What has been done
In 2015, a stakeholder requested a future "decluttering" class. Basic information existed but a strong program did not. Utilizing resources from national colleagues, I created "Declutter Your Life and Reduce Your Stress." In this workshop, participants determine if they have a "problem" with clutter, identify ways to deal with and eliminate the clutter, and learn why it is important to not have too much clutter in their possession. They leave with simple-to-use tools to start the process immediately.

Results
We taught 246 participants in ten workshops and conducted a post-evaluation with a sample group. Nearly 93% of participants said the class helped them focus on their clutter and the issues clutter causes, and 89% of participants were able to define their clutter and immediately start a plan of simplifying.
The 87% of participants agreed that practicing the '4-Box Method + 1' while touching the item only once in the process was helpful. The 87% of respondents also indicated they would think about an item before purchasing it and pre-determine where it would 'live' in their home.
About 81% of participants were excited to live the decluttered life they envisioned for themselves. Also, attendees indicated the following as important ideas or actions they planned to adopt: 'Thinking before I buy,' 'Do something each day,' 'Determining where my belongings should go

(talk with my children now),' 'Re-homing unused household items,' 'My partner recognizing that he has clutter, too,' and 'Getting rid of all the boxes I've moved 3-4 times and haven't used in 10 years.'

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2

1. Outcome Measures

O: Participants gain new personal finance knowledge. I: Knowledge gain reported on end-of-program evaluations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1114

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Few Extension programs have focused directly on credit score and credit card education. National Public Radio reported that a credit score can be just as important as an SAT score for youth who are transitioning to adulthood (Horsley, 2006). Credit reports and credit scores are no longer used exclusively by lenders but also are used by insurance companies, landlords, utility companies, elective medical service providers, and even employers to make critical decisions on individuals.

What has been done
Credit Score Millionaire was presented 13 times to a total of 547 participants, 225 of whom were Hispanic. Teens Credit Card was presented 3 times to a total of 94 participants, 14 of whom were Hispanic.

Results
The Credit Score Millionaire Class evaluation results for a total of 70 adult participants are reported below, with the statement followed by pre- and post-survey results for respondents' agreement with the statement.
'I know how to build a good credit score' 48% (pre), 98% (post).

'I am confident in my ability to increase my credit score' 43% (pre), 94% (post).
'I plan to regularly obtain my free credit report at annualcreditreport.com to ensure an accurate and improving credit record' 18% (pre), 93% (post).
'I plan to take action to improve my credit score?' 42% (pre), 96% (post).
'I plan to teach others how to build a good credit score' 31% (pre), 68% (post).

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

O: Participants adopt recommended financial practices. I: Participant responses on end-of-program and follow-up evaluations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	202

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
One hundred and fifty-two participants attended workshops wanting to learn more about managing financial practices for themselves and those around them.

What has been done
Participants were taught different management practices to utilize in their financial record keeping.

Results
The participants plan to adopt behaviors and methods to implement into financial records practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #4

1. Outcome Measures

O: Extension personal and family finance information is accessible to clientele, including new audiences, through Extension web sites, social media, webinars, and use of technology, and information displays. Indicator: Number of website sessions and pages visited. Number of social media followers. Number of participants in Adobe Connect, chat, webinars, or other trainings offered via technology. Number of people receiving information from displays.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	4075

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many people turn to social media and the internet for their information. However, much of the information on the internet is not research-based, and in some cases, it is not even coming from trusted sources. As people search for information to meet their needs in topics like personal finance, they may encounter inaccurate information, putting them at risk financially. UI Extension plays an important role as a trusted source of fact-based personal finance information.

What has been done
The University of Idaho Extension began collaboration with Montana State University Extension in 2015 on the already successful Solid Finances webinar program. This program, funded through a FINRA Foundation grant, was designed to help libraries share fact-based personal finance information with their patrons through the internet, thus reaching more people. The webinars are initially offered in real-time to anyone who wants to attend virtually.

Results
Over the past six years of grant support, program developers have produced an average of 16 new webinars a year, constantly reviewing and updating the information; these webinars have an average of 14 live participants/group locations in real-time, while the number of indirect views currently is unknown. During each webinar, the presenter asks participants poll questions regarding information/knowledge learned, as well as evaluative questions about the seminar and the presenter. One of the new webinars presented by an Idaho educator was titled, "Who Gets Grandma's Yellow Pie Plate? Idaho Version." All of the participants rated this presentation, the material, and the educator at the highest level (very good). Idaho-specific workshops (containing Idaho law) bring smaller crowds, but the information is useful to anyone. Since Idaho is new to

this program, the impact is still being assessed. Idaho will continue this partnership as we contribute to the Solid Finances suite of webinars and deliver the information through local libraries.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #5

1. Outcome Measures

O: Participants intend to adopt recommended financial practices. Indicator: Participant responses on end-of-program and follow-up evaluations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1097

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In 2015, aging stakeholders began asking for more information on preparing for end-of-life discussions with both family and financial professionals. They already knew the logistics, but they didn't know how to start the process. Who to talk to first? What information should they gather and take with them? How to find missing documents? How to downsize their personal property so their children didn't have to? They needed the basics on how to prepare before the meetings.

What has been done
I developed a "Simplify Your Life" workshop that covers downsizing and decluttering, organizing financial paperwork, and discussing non-title property transfer. It was offered in Moscow, Lewiston, Orofino, Potlatch, Kamiah, Coeur d'Alene, and Boise (25 classes). In addition, the materials and class packets were developed, new colleagues were trained in order to encourage statewide delivery, evaluations were developed for a long-term study, and the team was led through the process of writing an article.

Results
Based on information collected from after the workshop evaluation with a sample group of participants:
74% learned which documents they need to save, how long to save them, and the safest place to

store them;
94% said the program helped them focus on their clutter and the issues it could cause;
96% understood the importance of planning for both titled and non-titled property transfer;
87% understood the importance of and steps needed to protect and preserve digital assets;
83% will considered transfer options of disposing things they no longer use and seek help if they are having difficulty rehoming items;
97% understood how to legally make wishes known;
92% planned to update financial documents such as their will and an advanced medical directive);
73% intended to organize using the 52-week organizer or some other declutter resource;
87% planned to initiate conversations with others about inheritance and personal possessions.

The team is planning to submit an article and a UI Impact Statement in 2018 pending results from a 6-month follow-up scheduled in December 2017.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #6

1. Outcome Measures

O: Participants will share awareness, knowledge gained, and resources with others following the train-the-trainer model. Indicator: Number of total people reached with personal and family finance information.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	210

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The issue of youth financial literacy has gained attention among many decision makers in recent years, but youth continue to face complex challenges that often prevent them from achieving financial success. Student loans, credit scores and credit card debt are just a few examples of financial areas about which youth need to be more knowledgeable.

What has been done

The purpose of Northwest Youth Financial Education is to expand quality youth financial literacy programming throughout Idaho and the Northwest. The programs provide a high level of participant engagement and opportunities for energetic and dynamic learning.

Results
A number of online resources have been made available for students, parents, educators, and volunteers to download and then teach and learn about financial literacy specifically for youth. 27 volunteers were trained in 2017 to teach programs including 'Max Learns About Money,' 'Money Ninja Warrior,' 'Night of the Living Debt,' 'Teens Credit Card,' and 'Credit Score Millionaire.' Northwest Youth Financial Education is a partnership between University of Idaho Extension and Northwest Farm Credit Services.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Changes within Topic Team faculty)

Brief Explanation

The economy and national concerns continue to be major external factors for financial education. Many stakeholders continue to struggle to make ends meet and many have approached UI Extension very late in the game and need more attention and services than we could offer. Extension provides information and tools to help people live more financially productive lives, but also encourages hope for those who have come to feel hopeless in their situations. I help people with money coaching and financial behavior therapy. In a limited economy and with challenging news clips daily, the glimmer of good news is sometimes the difference needed for someone to make changes toward a more productive future.
In addition, this year brought new challenges with the changes in Topic Team faculty. Two educators moved on to other positions, which left a noticeable gap in programming. I took over many of their clients who needed immediate help. In addition to covering my own stakeholders, I was working with Idaho stakeholders all over the state. With many educators new to the field, I spent a lot of time helping them with questions they have. I am looking forward to new faculty positions being filled and new team projects in 2018.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

An evaluation of Welcome to the Real World was collected from 75 students. They reported learning the following skills: 69% how to write a check; 43% the difference between wants

and needs; 76% how to open a bank account; 85% how to balance a checkbook register; 78% how to set up and use online banking; 81% budget percentages for expense categories; 65% the relationship between education and potential earning; and 62% the time value of saving money.

Key Items of Evaluation

My best impact story happened after the Declutter Your Life and Reduce Your Stress class. I had a participant stop me at the grocery store and she was so excited. She said the class had inspired her to begin the decluttering process at her home with baby steps. She started with the kitchen counter that always seems to be the catch-all spot for anything from junk mail to backpacks etc. She said the clutter really stresses her out and it slows down how quickly she gets meals prepared and sometimes they just go out to dinner because it is so overwhelming. So, besides the stress of clutter, now she worries about her food budget related to eating out and too many calories. She continues to keep the de-cluttered counter space a priority to make life less stressful and healthier. She loves to come home to a decluttered kitchen!

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Farm and Ranch Management

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	0%		5%	
132	Weather and Climate	0%		5%	
601	Economics of Agricultural Production and Farm Management	25%		25%	
602	Business Management, Finance, and Taxation	25%		15%	
603	Market Economics	15%		5%	
605	Natural Resource and Environmental Economics	15%		20%	
606	International Trade and Development	10%		10%	
609	Economic Theory and Methods	5%		5%	
610	Domestic Policy Analysis	5%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	3.5	0.0	2.0	0.0
Actual Paid	4.6	0.0	1.1	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
91028	0	81581	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
91028	0	81581	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
319564	0	480638	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Farm and Ranch Management team reported 5,946 direct educational contacts and 10,849 indirect contacts. Team members published six refereed journal articles and five University of Idaho Extension publications. Team members were active in nine counties and participated in projects supported by $95,520 in grant funds.
The team provided a variety of training activities related to farm management, farm succession and estate planning, bull recordkeeping, risk management, pre-harvest marketing plans, strategic planning, financial fitness, balance sheets, and enterprise budgets and backyard chickens. Individual schools included Bean School (2 events, 140 learners), Beef School (3 events, 71 learners), Cereal School (4 events, 255 learners), and Forage School (3 events, 170 learners).
Additional classes include Quickbooks (6 dates, 18 total hours, and 153 learners), Farm Management (35 dates, 157 total hours, and 442 learners), and Annie's Project (six-week class series including topics such as financial documents, record keeping, estate planning, enterprise budgeting, human resources, tax reporting, and marketing).
A successful program piloted in 2014 included the Ag Outlook seminars. These events attract local producers and supporting industry members including bankers, processors, suppliers, etc., to learn about recent trends in their businesses and to discuss the likely scenarios for the near future. In 2017, five Ag Outlook seminars and presentations reached 560 learners.
Other important tools developed and used by UI Extension include new and updated enterprise budgets. These budgets are distributed at workshops and other events, are available online on the Idaho AgBiz website, and help improve producers' ability to make sound financial decisions about their operations. Budgeting was covered in 16 events which reached 230 learners.
Other activities include pesticide recertification workshops, testimony before the Idaho State Legislature on Idaho's agricultural economic outlook (3 days), working with students, and providing Fail to Plan, Plan to Fail workshops. One team member negotiated with the Shoshone-Bannock Jr./Sr. High School to conduct a farm business management program at the high school. This 18-week farm business management course in Fort Hall was aided by a tribal scholarship program, which paid course fees for five tribal members.

2. Brief description of the target audience

The target audience is comprised of farmers, ranchers, and agribusiness managers in Idaho who are interested in improving their business management skills. This includes farmers and ranchers who are struggling financially and need to evaluate alternatives and may need help with basic financial management concepts, as well as highly successful farmers and ranchers who want to stay at the cutting-edge by improving efficiency and evaluating alternative crops, cropping systems, or alternative livestock

and livestock production systems. Other target audience members include Native American farmers and ranchers, farmers and farm workers with disabilities, female producers, small acreage and market-direct producers, lenders and loan holders, industry personnel, agricultural policy makers, planning and zoning boards, water boards, insurance agents, service providers to farm and ranch managers, Extension educators, postsecondary agricultural students and instructors, and state and local government.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	5922	10195	24	654

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	5	10	15

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Farm Management Schools

Year	Actual
2017	9

Output #2

Output Measure

- Crop or Livestock Costs and Returns Estimates Published

Year	Actual
2017	2

Output #3

Output Measure

- Media Contacts: print, radio & TV

Year	Actual
2017	69

Output #4

Output Measure

- Workshops/presentations/classes/webinars at Commodity Schools/Conferences, Farm Management Schools, Idaho Legislature, or other appropriate venues

Year	Actual
2017	60

Output #5

Output Measure

- One-on-one consultations: office visits, phone contacts, email

Year	Actual
2017	271

Output #6

Output Measure

- Hits on Idaho AgBiz web site

Year	Actual
2017	200

Output #7

Output Measure

- Popular press articles and commodity school proceedings

Year	Actual

2017 1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Educational material is widely available to clientele. I: Number of publications, farm management or crop budget data CDs, or other resources distributed.
2	O: Clientele motivated to obtain knowledge and/or learn new management skills. I: Number of clientele attending educational programs.
3	O: Clients learn about new issues, management practices or marketing tools. I: Number of clientele attending educational programs that indicate a change in knowledge.
4	O: Clientele make management changes by applying new knowledge about issues, management practices or marketing/risk management tools. I: Number of clientele attending educational programs that indicate an intention to change a practice or that have changed a practice.

Outcome #1

1. Outcome Measures

O: Educational material is widely available to clientele. I: Number of publications, farm management or crop budget data CDs, or other resources distributed.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1209

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers want to make sound business decisions based on data.

What has been done
Publications, the UI Custom Rate's Guide, resource materials, or other detailed information was provided to 25 individuals and tribal departments.

Results
Twenty-five individuals gained new knowledge and skills by utilizing these publications for ranch and farm business management decisions. These individuals now have additional tools to develop more sustainable operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
605	Natural Resource and Environmental Economics
606	International Trade and Development

Outcome #2

1. Outcome Measures

O: Clientele motivated to obtain knowledge and/or learn new management skills. I: Number of clientele attending educational programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	159

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Idaho farm and ranch families are feeling the effects of decreasing agricultural prices. They are looking for ways to become better managers to keep their operations profitable

What has been done
Three farm management classes were offered in Eastern Idaho; one each in Rexburg, Blackfoot, and Preston.

Results
Producers attending the classes are now able to produce a set of financial statements, including balance sheets, income statements, and cash flow budgets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
605	Natural Resource and Environmental Economics
606	International Trade and Development

Outcome #3

1. Outcome Measures

O: Clients learn about new issues, management practices or marketing tools. I: Number of clientele attending educational programs that indicate a change in knowledge.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many producers in North Idaho produce forage and cattle, and have both pasture and hay ground. Making informed production and marketing choices for these enterprises is critical to their bottom line.

What has been done
The North Idaho Forage and Grazing School included lectures on intensive grazing, grassland ecosystems, fertility, weed control, hay preservatives, grazing cover crops, and an economic comparison of grazing cover crops versus annual crop production.

Results
Twenty-one out of 55 attendees responded to the evaluation survey. All respondents replied that their knowledge increased; 90% said it will be useful in their occupations; 86% said the knowledge they gained would affect management decisions in the upcoming season; and 76% said the program was either highly valuable or moderately valuable. Comments included, "We appreciate the quality of the education you provided."

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
605	Natural Resource and Environmental Economics
606	International Trade and Development

Outcome #4

1. Outcome Measures

O: Clientele make management changes by applying new knowledge about issues, management practices or marketing/risk management tools. I: Number of clientele attending educational programs that indicate an intention to change a practice or that have changed a practice.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	42

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Tribal and non-tribal agricultural producers are in need of increased computer and agribusiness management skills to improve their ranch and/or farm profitability. They also need to base decisions off sound financial data after careful analysis of their records.

What has been done
An eighteen-week farm business management course was offered to tribal and non-tribal producers, as well as community members.

Results
Five individuals increased their knowledge of farm business management principals and computer skills. Five individuals completed the course and began utilizing their new knowledge and skills to better manage their agricultural operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
605	Natural Resource and Environmental Economics
606	International Trade and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Public priorities and the economy go hand in hand when talking about farm and ranch management. The producers involved with our classes were always concerned about consumer demands and how the public viewed agricultural practices. In addition, government regulations are always hard for producers to deal with. The tax bill and medical insurance requirements for companies with employees have a lot of producers feeling uncertain about how to move forward financially. The Extension farm and ranch management team tries to stay a step ahead of the questions and provide producers with the latest publicly available information.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

For the North Idaho Forage and Grazing School in Ponderay, we administered an evaluation survey to participants. Twenty-one out of 55 attendees (38%) completed the survey. All but one participant farmed less than 1,000 acres. Results included: 1) all respondents reported an increase in knowledge as a result of attending the program; 2) 90% said it would be useful in their operation; 3) 86% said the knowledge gained would affect their management decisions in the upcoming season; and 4) 76% replied that the program was either highly valuable or moderately valuable. In terms of which topics were most valuable, many appreciated learning about management-intensive grazing and grassland ecology. Additional comments were solicited regarding requests for future programs. Responses included more information on fertilizer types and usage; information on microbes and how they impact grass, forest, and crops; and identification of local forage grasses.

Key Items of Evaluation

Working with a local cattleman, I presented a program on computer recordkeeping at the Beef School held by the Bonner-Boundary Cattlemen's Association last February. I had a client request information on recordkeeping software for aiding with culling decisions. My resource person for the workshop uses an old database program that is quite simple to collect just enough data from his cow-calf operation to simplify his culling decisions. The audience appreciated seeing how he created his efficient system, and we were able to

duplicate his paper records for use outside the class, as well as the old simple database program for distribution to the audience. Since he is a very successful local cattleman, the presentation had credibility and was very practical.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Food Safety

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	5%		20%	
503	Quality Maintenance in Storing and Marketing Food Products	20%		20%	
504	Home and Commercial Food Service	30%		0%	
603	Market Economics	0%		20%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	30%		40%	
722	Zoonotic Diseases and Parasites Affecting Humans	5%		0%	
723	Hazards to Human Health and Safety	10%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	3.7	0.0	2.0	0.0
Actual Paid	5.3	0.0	2.6	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
103241	0	195770	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
103241	0	195770	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
349968	0	1123464	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The food safety team delivered more than 140 educational programs to widely diverse audiences, totaling 2,757 learner contacts. Ninety-five food preservation classes were delivered to 1,195 learner contacts during 2017. Topics of individual workshops and presentations ranged from cross contamination to canning specialty foods. The food safety team was active in 13 counties and generated projects supported by $26,098 in grants.
Twenty workshops for Master Food Safety Advisors resulted in 305 educational contacts. Another eleven classes for advanced Master Food Safety Advisors were delivered to improve skills and enhance volunteer retention for approximately 117 continuing volunteers. Preserve@Home is a web-based course that was taught by educators from five Idaho counties plus educators from Colorado and Oregon. UI Extension facilitated the delivery of 18 Ready, Set, Food Safe classes taught in three counties, resulting in 148 graduates who completed the safe food handling certificate program. More than 1,030 Idaho children participated in Germ City at elementary schools across the state while 84 completed a handwashing workshop in three counties. Food safety faculty and Master Food Safety Advisors presented nine workshops on food safety instruction and reached 117 learners. UI Extension provided food safety education through multiple just-in-time client calls, and they tested hundreds of pressure canner gauges, many of which needed to be replaced for safety reasons.
One team member is working on "Can It! Freeze It! Dry It!" food safety videos in partnership with a Family and Consumer Sciences (FCS) Extension educator and an FCS program coordinator in Ada County. These should be released next year and will be available on county and university websites. Public workshops included FSPCA Preventative Controls for Human Food, Internal Auditor, Practical Food Safety and HACCP; and FSPCA Preventative Controls for Animal Foods.
Direct education is supplemented by brochures, newsletters, and newspaper articles that reach thousands of additional learners each year.

2. Brief description of the target audience

Consumer Food Safety Programs / Just in Time Food Safety / Preserve@Home -- Consumers who need specific information to keep food safe or to avoid risky foods, including seniors, youth, adults, parents of young children, volunteers who cook for groups, consumers who want food preservation information delivered online or on the phone, and others.
Master Food Safety Advisor / Master Food Preserver -- Consumers with a particular interest in home food preparation and food safety topics and in sharing that knowledge with others. Also Food Service Food Safety training to new Eat Smart Idaho nutrition advisors.
Food Service Food Safety Training -- High school and college students in foods classes and adult food service workers.

Hand Hygiene Education -- Elementary age children, families and children at county fairs, and adults at health fair settings.
Other target audiences include Idaho regulatory personnel, Idaho dairy food processors and manufacturers, food entrepreneurs, and seafood processors.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2473	19475	1588	732

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	3	9	12

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of food safety calls answered - includes call to sec/MFSAs

Year	Actual
2017	1542

Output #2

Output Measure

- Number of new certified Master Food Safety Advisors.

Year	Actual
2017	39

Output #3

Output Measure

- Number of re-certified Master Food Safety Advisors.

Year	Actual
2017	148

Output #4

Output Measure

- Number of students taking Preserve-at-Home

Year	Actual
2017	299

Output #5

Output Measure

- Students receiving a RSFS certificate.

Year	Actual
2017	1986

Output #6

Output Measure

- Number of participants in hand hygiene education program

Year	Actual
2017	1733

Output #7

Output Measure

- Number of people participating in food preservation classes.

Year	Actual
2017	266

Output #8

Output Measure

- Number of individuals receiving ServSafe certification.
  Not reporting on this Output for this Annual Report

Output #9

Output Measure

- Number of classes taught by MFSA volunteers

Year	Actual
2017	25

Output #10

Output Measure

- Number of food preservation equipment safety checks (pressure gauge tests)

Year	Actual
2017	484

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: People use Just in Time Food Safety Information to help them make decisions about food preparation, storage, etc. I: Number of people who describe that they will use requested advice.
2	O: Master Food Safety Advisors-Knowledgeable citizens volunteer to help others learn and adopt safe food practices. I: Number of volunteer hours logged by Master Food Safety Advisors.
3	O: Food Service Food Safety Training-High school students are prepared to work in food service jobs. I: Number of students passing the RSFS exam and becoming certified.
4	O: Hand Hygiene Education-People will practice improved hand hygiene for reduction of colds, flu and foodborne illness. I: Hand Hygiene Education-Program participants indicate their intention to adopt recommended health practices.
5	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.
6	O: Interested consumers will change food preservation practices after attending University of Idaho Extension food preservation classes taught by University of Idaho Extension. Indicator: Number of people indicating they will change their food preservation practices.
7	O: People use Just in Time Food Safety information to help them make critical decisions about the safety of food preparation, storage and preservation practices. Indicator: Number of food safety questions categorized as safety rather than quality related.
8	O: People use Just in Time Food Safety Information to help them make critical decisions about the safety of food preparation, storage, and preservation practices. Indicator: Number of people who describe that they will use UI Extension for other questions.

Outcome #1

1. Outcome Measures

O: People use Just in Time Food Safety Information to help them make decisions about food preparation, storage, etc. I: Number of people who describe that they will use requested advice.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	769

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many consumers call Extension offices to ask how to properly preserve foods or ask if something is safe to eat.

What has been done
Extension offices provide research-based information to people who ask questions about food preparation, storage, preservation, etc. When people asked for advice related to food safety, a log is kept to record these questions along with whether or not the consumer plans to follow the advice given.

Results
Of the 300 documented calls in Cassia County, 95% intended to use the information provided, and 50% of questions were related to the safety of the food in question.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

Outcome #2

1. Outcome Measures

O: Master Food Safety Advisors-Knowledgeable citizens volunteer to help others learn and adopt safe food practices. I: Number of volunteer hours logged by Master Food Safety Advisors.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	2390

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The FCS educators developed the Master Food Safety Advisor (MFSA) programs to increase capacity to meet the demand for consumer food safety and food preservation education

What has been done
A first-year MFSA program is offered annually every spring to train and certify new volunteers. An ongoing Advanced Master Food Safety program is offered throughout the year to train, support, and re-certify volunteers who completed the first-year program.

Results
This has been a very successful program over the past ten years. From 2014 to 2017, a total of 149 MFSA volunteers received training and support. These volunteers reached a total of 13,322 contacts through 48 different classes and events. They returned 5,156 volunteer hours, valued at $124,465 (based on a $24.14/hour independent sector rate).

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

Outcome #3

1. Outcome Measures

O: Food Service Food Safety Training-High school students are prepared to work in food service jobs. I: Number of students passing the RSFS exam and becoming certified.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1986

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
About one-third of employed youth, aged 15-17 years old, work in food service, and 70% of teens work in food service as their first job. Many Idaho high schools have vocational food-service programs, including in-school cafes or bakeries, where food is prepared for public sale.

What has been done
Idaho high school teachers have been trained to deliver the Ready, Set Food Safe (RSFS) curriculum. If students pass the final exam with an 80% or higher, they receive an approved safe food handlers certificate.

Results
During the 2016-2017 school year, 1,950 youth received their safe food handlers certification.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

Outcome #4

1. Outcome Measures

O: Hand Hygiene Education-People will practice improved hand hygiene for reduction of colds, flu and foodborne illness. I: Hand Hygiene Education-Program participants indicate their intention to adopt recommended health practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1419

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Educating youth about proper handwashing can help reduce the spread of cold, flu, and general sickness in the public school system. This will reduce student absenteeism as well as overall family health since students will share what they're learned with family members.

What has been done
Hand hygiene lessons were conducted in nine different classrooms and other large group settings.

Results
At the end of each lesson, participants were asked which hand hygiene practices they were planning to improve upon. Participants raised their hands for each practice and the number of participants were counted on a chart (n=183). The chart was then hung up in the classroom to help remind the participants what they were planning to work on.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

Outcome #5

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #6

1. Outcome Measures

O: Interested consumers will change food preservation practices after attending University of Idaho Extension food preservation classes taught by University of Idaho Extension. Indicator: Number of people indicating they will change their food preservation practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	24

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Improperly canned foods can cause seriously unsafe products that can make those who consume them sick. Education can reduce these risky behaviors.

What has been done
Workshops were offered to the general public about the correct and necessary steps to processing home-canned products.

Results
Eighteen participants responded that they gained a better understanding of the importance of food safety in food preservation and that they would follow safe methods moving forward.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

Outcome #7

1. Outcome Measures

O: People use Just in Time Food Safety information to help them make critical decisions about the safety of food preparation, storage and preservation practices. Indicator: Number of food safety questions categorized as safety rather than quality related.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	826

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Without proper knowledge, individuals may engage in unsafe practices that could put themselves and those they are cooking and preparing food for in danger of getting sick.

What has been done
Participants were educated on ways to reduce risky food handling practices and why certain steps are recommended.

Results
In Boundary County, 37 people contacted the office with food-related questions. Twenty-four (65%) of these could be categorized as food safety questions. In two other counties, 42 calls out of 62 (68%) and 83 calls out of 165 (50%) were related to food safety.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

Outcome #8

1. Outcome Measures

O: People use Just in Time Food Safety Information to help them make critical decisions about the safety of food preparation, storage, and preservation practices. Indicator: Number of people who describe that they will use UI Extension for other questions.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	389

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
People call or stop by with questions regarding food safety. It is important they use the advice they are given in order to protect the well-being of every one who consumes the food they prepare. It is also important they realize UI Extension uses fact-based and reliable resources to answer questions.

What has been done
When Extension personnel answer one question, other questions often arise which either can be answered in office or via a referral. People are often surprised about what a great resource Extension is.

Results
In Bingham County, one caller asked for watering tips and then had harvest questions. Two Extension professionals in one office were able to answer her questions. In Boundary County, 31 of 37 callers (84%) indicated they would contact UI Extension in the future when they had questions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Changed to another Extension office 10/9/2017; Out for medical leave three weeks in July 2017; Our population is becoming more interested in health; People want to preserve their food properly; Consumer and food safety expectations; Time)

Brief Explanation

Natural disasters and the economy have had a serious influence on home food preservation. This has increased interest in the local food movement and the desire to have food available that will withstand natural disasters or lack of access to power. This has resulted in increased demand for education in this area.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

I partnered with four Extension educators and the state Food Safety Specialist to develop a research study that focused on students in kindergarten through 5th grade with schools in eastern, central and western Idaho. A total of 313 youth completed the research study. The hand washing education consisted of using the "Germ City" florescence lesson (Washington State University curriculum) to teach the steps for proper hand washing and the five times it is most important to wash hands. Each lesson was approximately 30 minutes long.
This study aimed to measure whether there was a significant decrease in bacteria colony-forming units (CFUs) after hand washing instruction and retention of proper hand washing techniques. The students in this study were swabbed twice, once at the beginning of the lesson and once after the students had washed their hands. The two CFU samples for each student (pre and post) were averaged using a sign test. Evidence supports a median reduction of CFUs of -3. A pre-mean CFU count and a post-mean CFU count were taken for each student. There was a 74.45% mean reduction of CFUs, showing a CFU reduction after the lesson.
A post survey was given to the 3rd-5th grade students to track behavior change related to when and how often they were washing their hands. A survey was also conducted with teachers to communicate any changes they noted in the behavior of students' hand washing practices following the lesson. Seventy-eight percent of teachers saw an increase in hand washing and 78% saw an increase in use of proper technique.

Key Items of Evaluation

I had an elderly woman enter my office with questions on canning pumpkin. She told me about her process in which she had pureed the pumpkin and processed it in a boiling water bath canner. I had the opportunity to teach her about high acidity, low acid, density, and core temperatures, as well as the risk of botulism poisoning. She agreed to throw out all her contaminated product, purchased a book with safe recommendations, and has contacted me since for canning advice. She was referred to me from a client of one of my Food Safety classes.

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Climate Change: Forest Management

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	10%		0%	
122	Management and Control of Forest and Range Fires	15%		0%	
123	Management and Sustainability of Forest Resources	40%		25%	
131	Alternative Uses of Land	10%		0%	
132	Weather and Climate	5%		5%	
213	Weeds Affecting Plants	5%		35%	
215	Biological Control of Pests Affecting Plants	5%		25%	
216	Integrated Pest Management Systems	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	3.6	0.0	2.0	0.0
Actual Paid	4.5	0.0	1.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
150376	0	75614	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
150376	0	75614	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
236537	0	395093	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 4,757 direct educational contacts through Extension and 444,542 indirect contacts. Team members published three articles in refereed journals and participated in projects funded by $2,436,434 in grants. Team members were active in seven counties.
Forest management programs are largely centered in the forest-rich Idaho Panhandle and north-central regions of Idaho. Since 1993, the extension systems of the University of Idaho and Washington State University have cooperated to hold an annual forum for consulting foresters, state-employed service foresters, and other natural resource professionals working with family forest owners. The program, titled the "Family Foresters Workshop," updates participants on emerging technology and knowledge applicable to family forestry. The location alternates between northern Idaho and eastern Washington. Other programs for forest owners included the Forestry Shortcourse and the Family Forest Conference.
As part of the Idaho Forest Stewardship program, a cooperative effort with the Idaho Department 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." This work is supported, in part, by grant funds from the US Forest Service through the IDL. The activities are designed to strengthen forest owners' ability to implement practices that improve forest health and growth.
The Idaho Master Forest Stewards (IMFS) program continues to work with forest owners to develop their skills and provide information and education in schools and at community events. The program is intended to improve the growth and health of Idaho forests through forestry education by trained and certified volunteers. Four one-day "core" sessions provide content on native understory plants, invasive species, riparian ecology, and adult and Extension education methods. It also includes a session where trainees spend a day with a natural resource professional and create a case study on a topic they learned about in depth. In return for their training, certified Idaho Master Forest Stewards provide at least 70 hours of volunteer service over two years. In 2017, IMFS volunteers met for program development, learned about "The War on Weeds," visited Stimson Lumber Company's reforestation efforts, and participated in a field trip to a variety of stands managed by IDL chosen to illustrate different stages of forest development after a stand regeneration harvest.
Education for loggers, including beginning Logger Education to Advance Professionalism (LEAP) held courses in Coeur d'Alene and Moscow, reaching 420 learners at five different LEAP Update events. LEAP certification for loggers features 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 IDL personnel on state forestry laws and insects and disease. LEAP Update classes are required to maintain certification.
Extension forest management team members delivered about 37 workshops and classes in which 1,113 learners studied topics including stream restoration, mushroom hunting and growing, forest edibles, Android forestry, control of invasive weeds, forest health, scaling and marketing private timber, tree

identification and measurement, forest management technology, GIS/GPS training, rural land purchasing, forest planning, and broadleaf weeds.
Extension natural resources faculty attended around 80 committee and council meetings in 2017. Notable among these were 18 meetings with Firewise (a nonprofit that coordinates, supports, and promotes statewide wildland fire education) and 29 meetings with Clearwater Basin Coalition (a regional development leadership effort) that works with community leaders, NGOs, and US Forest Service staff to improve the management of federal lands in north-central Idaho. This effort stresses natural resource's contribution to the local economy while at the same time practicing good stewardship and creating improved ecological conditions for the values people desire from the land.

2. Brief description of the target audience

The traditional primary audiences for this topic team are family forest owners, private landowners, loggers, forestry and natural resource professionals and managers, outreach to fire and emergency professionals, landscape architects, designers, contractors, Master Gardeners, green industry professionals, residents of Idaho's wildland/urban interface, Master Forest Stewards, Master Water Stewards, sustainably managed forests and certified wood products loggers, natural resources committees, community leaders, recreation participants, Extension faculty and educators, teachers, and youth.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4510	441377	247	3165

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	6	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of workshops, field days, etc. (reported by program organizer, if organized by UI Extension)

Year	Actual
2017	50

Output #2

Output Measure

- Number of participants in workshops, field days, etc. (reported by program organizer, if organized by UI Extension)

Year	Actual
2017	2213

Output #3

Output Measure

- Number of articles in popular press

Year	Actual
2017	13

Output #4

Output Measure

- Number of hits on U-Idaho Extension Forestry website and YouTube videos; number of likes on U-Idaho Extension Forestry Facebook page; number of webinar attendees

Year	Actual
2017	14868

Output #5

Output Measure

- Continuing Education hours for participants (reported by program organizer, if organized by UI Extension)

Year	Actual
2017	3594

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.
2	O: Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Indicator: Numbers of participants indicating they will adopt various specific recommended practices
3	O: Forest and Natural Resource Workforce Development: Numbers of programs offered for formal continuing education credits (e.g., Society of American Foresters CFEs, ISDA pesticide credits, Idaho pro-logger credits, etc.). Indicator: Numbers of programs
4	O: Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Indicator: Numbers of Idaho loggers gaining or maintaining enrollment in the Idaho Pro-logger program.
5	O: Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Indicator: Numbers of foresters gaining or maintaining enrollment in the SAF Certified Forester program
6	O: Forest and Natural Resource-based Economic Development: Forest owners, managers, entrepreneurs, and decision-makers are taking greater advantage of economic opportunities related to forest lands, improving rural economies. Indicator: Numbers of participants that have indicated they will take greater advantage of economic opportunities related to forests.
7	O: Forest Productivity and Sustainability: The productivity and sustainability of Idaho's working forests has improved, and forest owners and managers are more successful at achieving their management goals. Indicator: Numbers of participants indicating they will adopt various specific recommended forest management practices.

Outcome #1

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

O: Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Indicator: Numbers of participants indicating they will adopt various specific recommended practices

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	828

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Foresters and other natural resource professionals must continually stay current with emerging scientific and technological developments to practice sustainable forestry and to maintain logger contractor employment. UI Extension is uniquely situated to provide local continuing education opportunities for field foresters, loggers, and other professionals engaged in forest systems, including realtors and local decision makers. Continuing education is important because forest health and productivity can be affected by insect and disease problems. K-12 students also benefit when their teachers integrate research-based forestry education into their classrooms.

What has been done
Research on methods for creating biofuel from forest residuals (i.e., slash piles) is ongoing. Continuing education for natural resource professionals included workshops on thinning and pruning, tree planting, forest economics, log scaling, culvert and bridge design, wood pellet utilization, forest health, LEAP, and LEAP Update. Insect and disease diagnosis and control recommendations were delivered through classes and one-on-one through the tree clinic. These efforts reached forest professionals from universities, state agencies, consultants, and local businesses. The Forestry Shortcourse provided continuing education and University of Idaho

credit to K-12 teachers helping them integrate forest science into their classrooms.

Results
One hundred sixty-six foresters and other natural resource professionals attended UI Extension forestry programs in the Idaho Panhandle in 2016-2017 for 1,090 contact hours. Participants in the 2017 Family Forester's Workshop, indicated percentage knowledge increases ranging from 21% to 79% on the following topics: new forest products, family forest projections, managing forests in droughts, prescribed burn effectiveness, biofuels, managing forest habitats for moose, and family forest economics and policy. One Panhandle teacher took the Forestry Shortcourse for credit in 2016-2017. Some teachers have used the short course to develop innovative high school forestry classes.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

O: Forest and Natural Resource Workforce Development: Numbers of programs offered for formal continuing education credits (e.g., Society of American Foresters CFEs, ISDA pesticide credits, Idaho pro-logger credits, etc.). Indicator: Numbers of programs

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	17

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Continuing education credits assist natural resource professionals with maintaining their employment.

What has been done

Five forestry-related workshops were held offering some form of credits for maintaining certification in their profession.

Results
A total of 283 credit hours were earned by attendees to these workshops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

O: Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Indicator: Numbers of Idaho loggers gaining or maintaining enrollment in the Idaho Pro-logger program.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	753

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Maintaining pro-logger accreditation is important for forest sustainability and logger employment. Training in programs offered by UI Extension helps loggers apply better land stewardship. Through communication from these loggers, this knowledge will also reach landowners, who will ultimately increase wood and biomass to support Idaho's economy, while maintaining water quality, improving forest health, and enhancing biological diversity.

What has been done
Nearly 1,000 loggers have attended the 45 LEAP sessions since 1994 that was offered annually in the Idaho Panhandle.

Results
As a result of 199 loggers' participation in the two LEAP Update sessions held in the Idaho Panhandle in 2017, 189 loggers will correctly apply Idaho forest practice laws; 154 will better prepare sites for reforestation; 144 will engage or inform others on forestry policy; 130 will consider geotextiles for road building; 99 will assess or use new timber harvest equipment, technologies, or practices; and 56 will implement silvicultural practices related to Engelmann spruce. As of 2017, 656 loggers have enrolled in the Idaho Pro-Logger program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
216	Integrated Pest Management Systems

Outcome #5

1. Outcome Measures

O: Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Indicator: Numbers of foresters gaining or maintaining enrollment in the SAF Certified Forester program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	33

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Assisting foresters with maintaining their professional accreditation is important for forestry professionals working in rural Idaho.

What has been done
Two workshops were held offering a total of eight Society of American Foresters (SAF) Continuing Forestry Education (CFE) credits in 2017.

Results
Eight foresters took advantage of this opportunity, earning a total of 21 SAF CFE credits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
216	Integrated Pest Management Systems

Outcome #6

1. Outcome Measures

O: Forest and Natural Resource-based Economic Development: Forest owners, managers, entrepreneurs, and decision-makers are taking greater advantage of economic opportunities related to forest lands, improving rural economies. Indicator: Numbers of participants that have indicated they will take greater advantage of economic opportunities related to forests.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	90

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Improving rural economics through better utilization of land-based resources is important to local residents and community leaders.

What has been done
Team members organized and participated in a number of community forest and regional efforts to promote better land management for the increased ecological and economic health of the region. Various natural resource programs were offered that stress economic utilization of rural landowners? natural resources.

Results
In FY 16-17, 569 owners of nearly 51,700 family forest acres attended UI Extension workshops and educational activities in the Idaho panhandle. Participants indicated knowledge increases ranging from 30% to 78%, with an un-weighted average of 47%. Thirty forest owners will spend more time talking to mill representatives regarding their log specifications and prices; 29 will improve log manufacturing; 15 will harvest non-timber products to sell; 10 will start or modify a business related to non-timber forest products; and 3 will form a family forest business.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
122	Management and Control of Forest and Range Fires
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
216	Integrated Pest Management Systems

Outcome #7

1. Outcome Measures

O: Forest Productivity and Sustainability: The productivity and sustainability of Idaho's working forests has improved, and forest owners and managers are more successful at achieving their management goals. Indicator: Numbers of participants indicating they will adopt various specific recommended forest management practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	3136

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Improving the management of non-industrial private forest land in Idaho is the major focus of this team. These forests make up a significant percentage of the state's forested landscapes and watersheds, and how they are managed has important implications for the health of the state's environment and its economy.

What has been done
Various workshops and publications were produced to communicate sound land stewardship principles to private landowners. Most programs are geared to new or small-acreage, non-industrial private landowners.

Results
In FY 16-17, 569 owners of over 516,800 family forest acres attended UI Extension programs in the Idaho Panhandle. Participants indicated they would implement many improved forest management practices. For example: 247 forest owners will monitor for forest insect, disease, or

animal damage; 234 will favor tree species that resist insects and disease; 142 will thin forest trees; 101 will harvest non-timber forest products for personal use; 80 will harvest non-timber forest products more sustainably; 59 will prune forest trees; 58 will monitor and manage weeds or other invasive species; 57 will reduce unwanted vegetation; 49 will contact a forester for additional assistance; 48 will use internet data sources to help manage their forest; 31 will use safety equipment when thinning or pruning; 29 will improve log manufacturing; 25 will reduce fuels in the home ignition zone; and 25 will complete a forest management plan.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Widespread tree mortality from bark beetles and western balsam adelgid coupled with overstocking led to an unprecedented wildfire danger and loss of trees. Continued or increased funding from the Renewable Resources Extension Act (RREA) is critical to several activities described in this plan. Cuts to UI Extension state budgets or county budgets supporting UI Extension efforts would affect programming.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

My key evaluation item was the pilot study on wildland firefighters (WLFF). Accidents are a notable occurrence in wildland firefighting. From 2005 to 2015 the United States lost 176 WLFF, averaging 18 losses per year, compared to the total number of firefighting accidents (average of 42 per year). While many risks are involved in deploying WLFF, without their work, civilian lives, homes, and communities could be harmed. Factors that may affect risk for injury or death include working conditions, hydration, sleep, energy expenditure, dietary intake, cognitive function, and stress (as measured by select biomarkers). A pivotal step in reducing injury or death rates in wildland firefighting is to understand the etiology. In order to assess conditions that may affect WLFF safety and health, an online survey was conducted in spring 2017 with n = 428. Results of this survey indicated that situational awareness is impacted by health and safety issues. Sleep data indicated that WLFF reach

impaired conditions while on the fireline, with reaction times slowed by as much as 55-100%. Results also showed that due to inadequate nutrition and hydration, WLFF undergo body compositional changes which are not favorable. WLFF are gaining weight while losing muscle mass as a result of less than ideal nutrition habits during the fire season. As a result of the initial pilot study, interventions are being developed and have been implemented to reduce accidents and injuries on the fireline.

Key Items of Evaluation

In 2016-2017, Idaho Master Forest Stewards (IMFS) provided over 850 hours of volunteer service to 4,730 forest owners and other adults and 2,212 youth. In addition to interacting with peer forest owners, IMFS volunteered in a wide range of activities, including the following: hosting and teaching at forest owner field educational programs; writing articles for newspapers and magazines; teaching youth about forests and forestry; and serving in leadership positions in the Idaho Forest Owner Association, Idaho Tree Farm Program, and Conservation Districts. The value of IMFS volunteer hours during this period is estimated at $17,945.

The IMFS program is built on a philosophy of shared leadership between the volunteers and UI Extension. Volunteers are guiding the IMFS program's continuing evolution. For example, in 2016-2017 they met twice to discuss ongoing IMFS program development, learn about noxious weed issues in Bonner County; visit Stimson Lumber Company's reforestation efforts; and participate in a field trip to stands managed by the Idaho Department of Lands (IDL) and chosen to illustrate different stages of forest development.

The IMFS will continue to help sustain Idaho's forests. They will also inform the forestry community about family forest owners' needs and help guide UI Extension and research programs and technical assistance efforts to serve public and privately employed foresters.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Global Food Security and Hunger: Health & Human Nutrition

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
502	New and Improved Food Products	0%		25%	
701	Nutrient Composition of Food	10%		0%	
703	Nutrition Education and Behavior	30%		25%	
704	Nutrition and Hunger in the Population	15%		0%	
723	Hazards to Human Health and Safety	10%		10%	
724	Healthy Lifestyle	30%		10%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%		5%	
903	Communication, Education, and Information Delivery	5%		25%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	6.9	0.0	2.0	0.0
Actual Paid	8.7	0.0	2.8	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
236716	0	163434	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
236716	0	163434	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1352809	0	1125093	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The health and nutrition team logged more than 740 individual teaching events and engagement activities in 2017. In total, these efforts reached more than 34,000 Idaho contacts. Team members published two articles in refereed journals and two Extension publications, and they participated in projects funded by $1,968,530 in grants. Team members were active in 15 counties.
Faculty working on the Healthy Lifestyles/Physical Activity project presented to 374 individual fitness classes and consultations reaching more than 10,000 contacts. Fitness events included classes like "Choose Health: Food, Fun, and Fitness" to help with obesity issues and making healthy choices. Additionally, 150 sessions of Strong Women were delivered for more than 2,425 contacts. Twenty-three classes and workshops (MyPlate, etc.) about nutrition (exclusive of the SNAP-Ed and EFNEP projects) provided information about healthy foods to nearly 1,900 contacts. In addition, 40 school presentations of Smarter Lunchroom reached 11,364 youth contacts specifically. Fifteen sessions reached 8,775 youth with the Run for Fun Pedometer Challenge and Around the World Challenge. Other activities included Healthy Food Drive, Dietary Guidelines Curriculum Development, New Knowledge Adventures, Yeah! Program, Banana Belt Backyard Gardening, and GROW Healthy Kids and Communities. Venues for classes included teen conferences, classrooms, youth camps, senior centers, farmers markets, and many others. Eat Smart Idaho includes both of the low-income and underserved audience projects (i.e., EFNEP and SNAP-Ed) delivered through UI Extension. Eat Smart Idaho delivered 98 classes reaching more than 32,300 contacts in eight counties. The 4-H Food Smart Families project was also delivered as a major youth component of Eat Smart Idaho.

2. Brief description of the target audience

UI Extension reaches general community members as well as low-income and underserved individuals through programs including Health Living, Eat Smart Idaho, Community Dinners, and Healthy Habits. Participants include youth, adults, elderly, educators, coaches, business management teams, county leaders, families, nutrition professionals, caregivers for individuals with disease states that can be helped with good nutrition practices, Hispanic youth and adults, federal food assistance program participants (i.e., SNAP, WIC, etc.), daycare providers, tribal youth and adults, Eat Smart Idaho paraprofessionals, University of Idaho students and faculty, University of Idaho Extension faculty, and Master Food Safety Advisors.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	16229	170791	53338	30697

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	2	11	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Eat Smart Idaho will conduct classes to adults and youth.

Year	Actual
2017	14880

Output #2

Output Measure

- FCS Extension faculty will conduct physical activity classes to adults and youth.

Year	Actual
2017	372

Output #3

Output Measure

- FCS extension faculty will use social media platforms to provide health and nutrition information. The target will be the number of followers.

Year	Actual
2017	4200

Output #4

Output Measure

- FCS extension faculty will conduct nutrition classes to adults and youth.

Year	Actual
2017	517

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Adult Eat Smart Idaho participants will improve their diets after completing the Eat Smart, Be Active course. Indicator: Number of adults that improve their diets by at least one food group (determined through pre/post food behavior checklist).
2	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.
3	O: Participants in the Healthy Living project will increase their knowledge about eating healthy. Indicator: Participants will increase their knowledge about fruits, vegetables, whole grains, low-fat dairy, lean protein, healthy fats.
4	O: Participants in physical activity programs will improve overall fitness. Indicator: Number of adults that improve performance in physical fitness assessments.
5	O: Participants in the Healthy Living project will improve their eating habits. Indicator: Number of participants in the Healthy Living project who consume more fruits, vegetables, whole grains, or low-fat dairy products

Outcome #1

1. Outcome Measures

O: Adult Eat Smart Idaho participants will improve their diets after completing the Eat Smart, Be Active course. Indicator: Number of adults that improve their diets by at least one food group (determined through pre/post food behavior checklist).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	11978

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Eating the recommended number of fruits and vegetables, low-fat dairy, and whole grains, and being physically active 150 minutes or more per week are healthy habits that can decrease incidence of chronic diseases (e.g., heart disease, certain cancers, and obesity), which in turn, may help drive down health care costs.

What has been done
Eat Smart Idaho provided direct nutrition education and physical activity classes to low-resource adults throughout the state. Participants completed a food behavior checklist before and after a series of classes following the Eating Smart, Being Active curriculum.

Results
A total of 1,192 adults participated in the Eating Smart, Being Active class series. Of these, 875 adults completed the series and an associated pre/post food behavior checklist. Graduates reported improvement in dietary intake following the class series: 32% reported an increase in whole grain intake; 30% reported an increase in low-fat dairy intake; 33% improved intake of vegetables; 35% increased fruit intake; and 30% reduced intake of sugar-sweetened beverages. Overall, 74% of graduates reported improvements in one or more dietary quality measurements.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population

724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
701	Nutrient Composition of Food
723	Hazards to Human Health and Safety

Outcome #3

1. Outcome Measures

O: Participants in the Healthy Living project will increase their knowledge about eating healthy. Indicator: Participants will increase their knowledge about fruits, vegetables, whole grains, low-fat dairy, lean protein, healthy fats.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	373

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The majority of Americans do not consume enough fruits, vegetables, and whole grains, thus contributing to development of many health issues, including cancer, obesity, heart disease, and type-2 diabetes.

What has been done
Nutrition courses emphasized filling one's plate half-full with fruits and vegetables and choosing whole grains for at least half of grains consumed.

Results
From the 66 nutrition classes presented this year in Bonneville County, a minimum of 208 participants indicated at least one new nutrition fact learned via a post-presentation survey.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #4

1. Outcome Measures

O: Participants in physical activity programs will improve overall fitness. Indicator: Number of adults that improve performance in physical fitness assessments.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	665

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Adults and youth in the United States are more inactive than ever, resulting in a continual rise in overweight and obesity levels. Inactivity and poor nutritional choices are some of the variables causing this increase, and a higher rate of chronic disease is occurring.

What has been done
Individuals who participated in one-on-one and group health and fitness trainings were assessed in their overall fitness levels at the beginning and end of their trainings.

Results
The majority of participants experienced improved physical condition (e.g., strength, balance, coordination, agility) and increased weight loss. Among 38 participants who recorded a Timed Up and Go test during two sessions, 47% showed improvement in time needed to stand up from a seated position, walk six feet, turn around, and sit down again.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #5

1. Outcome Measures

O: Participants in the Healthy Living project will improve their eating habits. Indicator: Number of participants in the Healthy Living project who consume more fruits, vegetables, whole grains, or low-fat dairy products

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	108

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Participants with healthy eating habits can lower their weight and reduce their overall risk of chronic disease.

What has been done
In the Diabetes Prevention Program, we collected food logs every week along with recording participants' current weight.

Results
Six individuals increased their consumption of fruits and vegetables and chose whole grain options. Four of the six have seen weight loss as well.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Sick leave for three weeks; New employees hired; Extreme weather)

Brief Explanation

Teaching and programming in rural Idaho communities has to take into consideration outside factors that could influence actionable, behavioral change. Idaho County has a considerable number of low-income individuals, so providing programming that fits the needs of all can be challenging. While emphasis is placed on offering programming that is open to all residents at a free to low-cost investment, socio-economic factors will continue to bring challenges to offering programs in rural Idaho.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Eat Smart Idaho provided direct nutrition education and physical activity classes to 3,946 children and youth (259 in Pre-K; 839 in K-2nd grade; 2,147 in 3rd-5th grade; 517 in 6th-8th grade; and 184 in 9th-12th grade) using evidence-based curricula. These included 'Color Me Healthy,' 'Choose Health, Food, Fun and Fitness,' and 'Up for the Challenge.' Age appropriate pre-post surveys were provided to collect data on diet quality, physical activity, food safety, and food resource management. Overall, 2,106 children and youth graduated the class series. Analysis of the pre-post surveys revealed the following results: 76% improvement or gain in knowledge in abilities of children and youth to choose foods according to the Federal Dietary Recommendations; 32% improvement or gain in knowledge in physical activity practices; 40% improvement or gain in knowledge in food handling practices; and 46% improvement or gain in knowledge in ability to prepare simple, nutritious, and affordable food.

Key Items of Evaluation

My best impact story comes from the series of nutrition classes I taught to youth in the 4-H Friday Friends afterschool program. By the end of the last class, the majority of kids could find which food group a specific type of food went into, as well as list one or more reasons why we needed to eat foods from that food group. They could also look at similar foods and, based on the nutrition label, state which food was the healthier choice and why. The children also picked individual goals they wanted to work on at home and at school to help them eat healthier.

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Climate Change: Soil, Water, Waste and Air Management.

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	10%		15%	
102	Soil, Plant, Water, Nutrient Relationships	10%		15%	
111	Conservation and Efficient Use of Water	10%		15%	
132	Weather and Climate	10%		10%	
133	Pollution Prevention and Mitigation	10%		10%	
205	Plant Management Systems	10%		10%	
307	Animal Management Systems	10%		0%	
403	Waste Disposal, Recycling, and Reuse	10%		10%	
405	Drainage and Irrigation Systems and Facilities	10%		15%	
601	Economics of Agricultural Production and Farm Management	10%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	4.6	0.0	9.0	0.0
Actual Paid	4.4	0.0	4.8	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
203375	0	380590	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
203375	0	380590	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
119815	0	2641639	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 19,360 direct educational contacts through Extension and 188,112 indirect contacts. They published seven articles in refereed journals and four in Extension publications, and they participated in projects funded by $71,462 in grants. Team members were active in 10 counties.
The soil, water, waste and air management team is highly integrated, participating in active projects to discover new knowledge, demonstrate and transfer new technologies, and work to understand local variants that impact resource-based enterprises and the environment. Research activities include aquaculture, evaporative loss, soil testing, dairy manure compost, and pest management. These topics are the subjects for field days and tours and have been communicated through professional journals.
Much of this team's educational effort relies on field demonstrations to help growers and other stakeholders understand local conditions related to use of cover crops, water quality monitoring, on-farm composting, manure application, recycling, and Low Elevation Spray Application (LESA) irrigation technology. One faculty member developed field-scale full-pivot demonstration projects on center pivots of malting barley near Mud Lake and Dubois to demonstrate the potential for increasing the acreage of energy- and water-saving LESA irrigation technology.
Consultations included soil analyses and surveys for disease and pest issues that reached 85 individual stakeholders, including industry representatives, watershed advisory groups, individuals, Idaho Department of Environmental Quality, and local government. Seventy-six presentations were delivered at workshops, conferences, and events, providing education to 3,569 adult learners on industry-critical topics, as well as topics relevant to communities and individual stakeholders. Sixty-five presentations for youth audiences reached 3,027 learners on topics including Mobile Bug Lab, soil conservation, and snow science.
Team members continued their work on three pesticide safety education manuals including laws and safety, weed management, and insect and disease management, which enhance stewardship principles and knowledge of water quality, resistance management, pollinator protection, and drift mitigation. In addition, pesticide certification and re-certification classes reached 1,091 learners.
The IDAH$_2$O program was delivered through 6 workshops reaching 83 stakeholders in 4 counties while tours and field days instructed 1,178 learners about diverse topics such as water systems and forestry. Other activities included an elementary school program about decomposers and vermicomposting, and development of curriculum and homework assistance resources for K-12 teachers and parents in water science.
Faculty participated in a range of multistate activities including aquaculture education (i.e., aquaponics, weed control), participation in the Western Regional Aquaculture Center, and attending and presenting at many conferences, workshops, and field days including the Nitrogen Use Efficiency Conference.

2. Brief description of the target audience

The target audience includes members of the public affected by water and waste management issues, including homeowners, students, realtors, small landowners (including but not limited to: recreational properties, small tracts of forest land, seasonal lake homes, etc.), producers (e.g., animal, aquaculture, crop), processors, professional applicators, feed manufacturers, irrigation industry personnel, industry representatives; and professional consultants (affected by waste management issues); natural resource professionals and planners, local and/or state officials who develop or implement rules and regulations related to environmental quality; state and federal agency personnel, and affected NGOs. The target audience also includes federal water supply forecasters, scientists, landscapers, science and engineering students, nutrient management planners, K-12 teachers and students, Masters programs (i.e., Master Gardeners, Master Naturalists, etc.), climate and weather data consultants, news reporters, and specialists interested in precision agriculture and sustainable crop production.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	13548	180250	5812	7862

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	4	27	31

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Workshops, seminars, and presentations to producer groups

Year	Actual
2017	62

Output #2

Output Measure

- Applied and basic laboratory and field research experiments

Year	Actual
2017	19

Output #3

Output Measure

- Newsletters distributed (number of issues) and number of articles submitted for other newsletters

Year	Actual
2017	22

Output #4

Output Measure

- Tours and field days

Year	Actual
2017	12

Output #5

Output Measure

- Professional presentations; invited and volunteer

Year	Actual
2017	36

Output #6

Output Measure

- CCA credits offered for participation in courses

Year	Actual

2017 38

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Participants use best practices for water, pesticide, nutrient, or waste management. Indicator: Number of program participants indicating adoption of recommended practices (follow-up survey data) or indicating intention to adopt recommended practices (post-program questionnaire)
2	O: Producers are aware of issues and knowledgeable of practices that affect the environmental and economic sustainability of agricultural production. Indicator: Number of program participants reporting that their knowledge had been increased because of their participation in programs.
3	O: Adoption of best management practices (BMPs) or UI recommendations by government agencies (EPA, NRCS, ISDA, DEQ, etc.). I: Number of best management practices incorporated into government agency nutrient management, water management, and water quality programs.

Outcome #1

1. Outcome Measures

O: Participants use best practices for water, pesticide, nutrient, or waste management. Indicator: Number of program participants indicating adoption of recommended practices (follow-up survey data) or indicating intention to adopt recommended practices (post-program questionnaire)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	40

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Water quality monitoring on wadeable creeks and small ponds is not happening through agencies, and K-12 teachers are not using the most up-to-date investigative natural resources and watershed science curriculum.

What has been done
Ninety IDAH2O workshop participants across the state were taught the basics of water quality assessments, while 50 K-12 teachers across the state were taught the investigative, hands-on learning curriculum of Project WET.

Results
Ten percent of new Master Water Stewards are actively participating in water quality monitoring, while all Project WET participants (n=50) are implementing best teaching practices for investigative, hands-on curriculum.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
132	Weather and Climate
133	Pollution Prevention and Mitigation

205	Plant Management Systems
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse
405	Drainage and Irrigation Systems and Facilities
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

O: Producers are aware of issues and knowledgeable of practices that affect the environmental and economic sustainability of agricultural production. Indicator: Number of program participants reporting that their knowledge had been increased because of their participation in programs.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	344

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Idaho Fish and Game (IDFG) requested an applied cold water aquaculture class for their relatively new employees to enhance their knowledge and skills. Improved employee knowledge and skills leads to improved hatchery operations, which helps meet target fish goals.

What has been done
A cold water course was developed and implemented in collaboration with IDFG and UI faculty. The course includes one tour day and 32 hours of instruction with lectures on water quality, feed BMPs, feed management, and solids management.

Results
The difference between pre-test and post-test results was an improvement of 48%, indicating improved awareness and knowledge of issues related to water quality and waste management in aquaculture. There were 36 participants in the class, including nine from private and three from tribal aquaculture facilities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
132	Weather and Climate
133	Pollution Prevention and Mitigation
205	Plant Management Systems
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse
405	Drainage and Irrigation Systems and Facilities
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

O: Adoption of best management practices (BMPs) or UI recommendations by government agencies (EPA, NRCS, ISDA, DEQ, etc.). I: Number of best management practices incorporated into government agency nutrient management, water management, and water quality programs.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Increasing scarcity of irrigation water supplies requires more efficient irrigation to maintain crop yield and quality.

What has been done
Demonstration of the water and power-saving benefits of LESA technology convinced the Bonneville Power Administration and some local utilities to cost-share for retrofit of center irrigation pivots to a LESA configuration. USDA-NRCS has now developed a cost-share program in eastern Idaho.

Results

Over 50 pivots were retrofitted to LESA as a result of this work in 2017. Results from over 15 LESA/conventional pivot comparisons in Nevada, Idaho, Oregon, California, and Washington show an average seasonal reduction of approximately 10-15% in irrigation water applied to meet crop need. This technology could be used on at least 1 million acres of Idaho irrigated land. This significant practice will be part of the solution for helping groundwater pumpers meet a 10-15% reduction in groundwater withdrawal required by a lawsuit settlement.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
133	Pollution Prevention and Mitigation
205	Plant Management Systems
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Producer manure application plan changes)

Brief Explanation

Due to continued uncertainty regarding surface irrigation water supply plus water level decline in irrigation wells, growers were more interested and attentive regarding irrigation hardware and management changes that could allow them to produce forage with less water. The possibility of producing forage at lower cost also motivated grower interest.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Using a post-class evaluation at a large pesticide recertification workshop, we found that: 65% of participants indicated that they plan to evaluate their insect sprays in order to protect pollinators; 55% who have attended this training in the past indicated they share information learned with employees, clients, and peers; 45% of past participants said they are using more IPM methods to control insects and pests than before attending this training; and 84% of participants said the training was worth their time and valuable to their farming operations.

Key Items of Evaluation

My best impact story is related to the involvement of producers and the community with the cover crops trial at the Gooding Community Garden. Volunteers have contributed large amounts of their time, machinery, and effort. The cover crops field day was well attended and received a positive response from the audience. There was a lot of interaction and exchange of experiences, and clientele requested to make it an annual event.

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Global Food Security and Hunger: Potatoes

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		15%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		10%	
202	Plant Genetic Resources	10%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	10%		10%	
205	Plant Management Systems	20%		15%	
212	Pathogens and Nematodes Affecting Plants	10%		10%	
216	Integrated Pest Management Systems	10%		10%	
503	Quality Maintenance in Storing and Marketing Food Products	10%		10%	
603	Market Economics	10%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	4.4	0.0	11.0	0.0
Actual Paid	3.7	0.0	9.7	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
210853	0	256806	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
210853	0	256806	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
80829	0	5556593	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Members of the potato team reported 6,792 direct educational contacts through Extension programs and 143,850 indirect contacts. Team members published one article in a refereed journal and one article in an Extension publication, and they participated in projects funded by $420,215 in grants. Through consultation with individuals and small groups, they reached 516 individual learner contacts, including growers and industry representatives. Team members were active in seven counties.
The potato team is highly integrated, participating in projects to discover new knowledge, to demonstrate and transfer new technologies, and to work to understand local variants that impact potato production and storage. Team members include disease and insect experts; fertility, irrigation, and harvesting experts; and storage and marketing experts. Team members meet regularly and collaborate with industry associations and the Idaho Potato Commission to understand stakeholder needs.
Zebra Chip disease continues to be an important topic for stakeholders and was included in the portfolio of research and extension activities targeting diseases and pests. Research continues on late blight, potato psyllids, potato virus Y, aphids, wireworms, and potato germplasm. Ongoing work includes field and greenhouse experiments to understand the ecology of and treatment options for serious potato pests in the field and in storage, nutrient management questions, and the value of various soil amendments. Field demonstrations help growers and other stakeholders understand the impact of various planting and pest management practices and irrigation needs and strategies. For example, a potato irrigation study was conducted comparing MESA to LESA systems for differences in production.
Technical information was disseminated through county faculty, educational seminars, workshops, conferences, news releases, field and storage visits, phone calls, newsletter articles, updates to websites and hotlines, and by providing information to trade journals and newspapers. With many pests and problems plaguing the potato industry, vital information needs to be shared in a multitude of mediums. The Potato Storage website was frequently used by the industry to access up-to-date information about research and extension programs, including economical, effective, and sustainable production and storage technology for potatoes. These applied activities have been shared through the Idaho Potato Conference, as well as a host of workshops, classes, and numerous field days and tours. Field days and tours reached 545 learner contacts, while the conference itself reached over 500 learners.
Dozens of workshops and articles in trade publications, presented or written by UI faculty, brought information to the industry about topics such as best practices for storage and residue sampling, pathogens and disease control, and more. Much of UI Extension faculty's work is made possible through collaboration and participation with various citizen and professional alliances concerned with environmental quality and agricultural sustainability. Industry contacts numbered over 500, while general contacts included nearly 150 growers.

2. Brief description of the target audience

Target audiences include potato producers and processors, seed producers, field agronomists, consultants, industry and agency representatives, insurance adjusters, field staff, Hispanic workers involved in potato production, members of the Idaho Potato Commission and the Northwest Potato Research Consortium, USDA-ARS, USDA-APHIS, agricultural chemical company representatives, county weed superintendents, and other extension specialists and researchers (national and international).

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	6769	143850	23	0

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	2	38	40

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Seminars, workshops and field day presentations

Year	Actual
2017	53

Output #2

Output Measure

- Trade Journals

Year	Actual
2017	17

Output #3

Output Measure

- Field Days

Year	Actual
2017	10

Output #4

Output Measure

- Individual Consultations

Year	Actual
2017	116

Output #5

Output Measure

- Graduate Students

Year	Actual
2017	5

Output #6

Output Measure

- Workshops

Year	Actual
2017	13

Output #7

Output Measure

- Email Information Dissemination

Year	Actual
2017	169

Output #8

Output Measure

- Potato Costs and Return Estimates
  Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Growers apply best potato management practices. I: Number of growers adopting recommended practices
2	O: Growers are aware of pest incidence. I: Number of Subscribers to pest alert website
3	O: Growers are knowledgeable about best potato management practices. I: Number of growers gaining knowledge about practices who have attended workshops or seminars.
4	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.
5	Develop potato varieties resistant to cold-sweetening.

Outcome #1

1. Outcome Measures

O: Growers apply best potato management practices. I: Number of growers adopting recommended practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Potato Sustainability Initiative surveys every potato grower in North America. Last year, 20% of all growers were audited in person to verify responses to the survey. The audit requires additional documentation and the ability to answer interview questions. Growers must prepare in advance of the audit. Audit results will establish the level of industry sustainability, identify areas of improvement, and ensure consumer confidence.

What has been done
In collaboration with colleagues in the Pacific Northwest, a proposal was written and granted to create a manual (posted to the potato website) to help growers methodically navigate the sustainability audit. Pre-made documents and resources to help answer questions were included. Information was also provided to the potato industry via newsletters and trade magazine articles.

Results
After being posted online, the manual was viewed by approximately 75 people who used the information for their audits. Auditors have informed us that each grower audited in Idaho utilized the manual. The manual and associated resources and information helped Idaho and other potato growers in North America to efficiently and effectively navigate the potato sustainability audit.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources

203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #2

1. Outcome Measures

O: Growers are aware of pest incidence. I: Number of Subscribers to pest alert website

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Effective insect pest management depends upon timely and accurate identification of target pests.

What has been done
Potato psyllids were monitored across the state, and updates on monitoring program results were disseminated to stakeholders weekly.

Results
Growers and crop consultants reported that the potato psyllids monitoring program helped them to better plan insecticide applications.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

216 Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

O: Growers are knowledgeable about best potato management practices. I: Number of growers gaining knowledge about practices who have attended workshops or seminars.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	140

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Bruising and its impact on potato quality is a concern for the Idaho potato industry. Variety, physiological characteristics, and environmental conditions all affect susceptibility to an impact during harvest, handling, and packing.

What has been done
Extension personnel worked with two fresh pack and harvest operations. Samples were collected at various points in the operation and an impact recording device was used to assess where the greatest impact of their operation on bruising occurred. This helped the operations make adjustments to lower bruise risk. Extension personnel answered operators' questions and provided input to make adjustments. Newsletters and trade journal articles were also provided to further outline bruise management.

Results
Thirty individuals received specific information pertinent to their operations to make adjustments to minimize bruising.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants

204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #4

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Develop potato varieties resistant to cold-sweetening.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
It is important to improve the competitiveness of the Northwest potato industry, assist producers to retain their way of life, and improve the quality of fresh pack potatoes. In order to meet the year around demand for french fries and potato chips, having varieties resistant to cold-sweetening which causes dark brown spots during processing and deemed unfit for human consumption is very important to the potato industry.

What has been done
Developed two potato varieties with enhanced cold-sweetening resistance.

Results
On a regional basis, McDonald's has accepted two new potato varieties, Premier Russet and Clearwater Russet for processing.

4. Associated Knowledge Areas

KA Code	Knowledge Area
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Fields in two eastern Idaho counties are quarantined because of the presence of pale cyst nematode (PCN). This is the only detection in the United States. Farmers cannot grow potatoes in those fields, and international trade of potatoes in the entire state, not just those two counties, has been affected. Litchi tomato, a successful PCN trap crop, is currently regulated by the state and USDA and can only be planted under strict permitting. An increase in allowed acreage would allow an increase in research and extension efforts.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

After a presentation on pale cyst nematode (PCN) by four speakers at the 2017 University of Idaho Snake River Pest Management Tour at the Aberdeen Research and Extension Center, tour participants were asked via a retrospective survey, "To what extent has your knowledge of PCN increased as a result of participating in today's presentation/activity?" Sixty-five percent indicated that their knowledge increased a lot; 28% indicated knowledge increased a little; and 7% did not increase knowledge.

Key Items of Evaluation

Litchi tomato, a PCN trap crop, is included in an Idaho State Department of Ag special invasive species category for trap crops and biofuel crops. Planting in Idaho is strictly regulated. Growers have not been open to using the trap crop due to fears that the trap

crop will become a weed. Results from herbicide management research conducted in quarantined fields showed that Litchi tomato can be well controlled in crop and non-crop settings. Based on this finding, growers more readily accepted planting in 2017. The only limitation was seed availability.

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Global Food Security and Hunger: Small Acreages and Community Food Systems

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		0%	
111	Conservation and Efficient Use of Water	10%		0%	
202	Plant Genetic Resources	10%		30%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		25%	
204	Plant Product Quality and Utility (Preharvest)	0%		25%	
205	Plant Management Systems	20%		20%	
212	Pathogens and Nematodes Affecting Plants	15%		0%	
602	Business Management, Finance, and Taxation	10%		0%	
604	Marketing and Distribution Practices	25%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	2.4	0.0	1.5	0.0
Actual Paid	6.8	0.0	1.4	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
123930	0	21078	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
123930	0	21078	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
398671	0	854553	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The small farms and community systems team members reported 16,554 direct educational contacts through Extension and 454,496 indirect contacts. Team members published one Extension article and participated in projects funded by $46,211 in grants. Team members were active in 14 counties.
Team members delivered a variety of intensive educational programs. Efforts to address the sustainable use of lands and natural resources included delivering the "Living on the Land" course in four counties. Other workshops and workshop series included marketing, financial fitness for farmers, funding a sustainable farm law, farm networking, ripple effects mapping, enterprise budgeting, backyard poultry, pesticide recertification, composting, and on-farm food safety.
Consultations with individuals or small groups, reached 627 individual learner contacts and covered topics such as weeds, pests, soil, and pruning. Workshops, presentations, classes and field days reached nearly 2,199 learner contacts and included topics such as weed science, pasture irrigation, pesticide recertification, hoop housing, and poultry. Educational events for small-acreage farmers and ranchers were delivered through several conferences including the Western Idaho Ag Expo and the Women in Agriculture conference and through individual workshops covering topics such as cropping, home gardening, and building networks in rural communities.
The team worked with beginning farmers through farm tours, crop workshops, webinars, meetings, and calls, making 758 contacts in 2017. Team members coordinated a Victory Garden series with Master Gardeners in Blaine County. Team members also collaborated on a "Land and Resource Evaluation" curriculum. A series of TED Ed videos were developed focusing on key aspects of land evaluation, including natural resources (soils and water), microclimates (slope, growing degree days), physical assets (buildings and fences), site history (and how it may affect future farming), and legal considerations (easements, zoning, lease arrangements, liability).
Team members participated in several community food system projects, including the One Sky One Earth Food Coalition and the Palouse Clearwater Food Coalition. Members worked with communities to invest in local food systems as a way to help end hunger and food insecurity. One member provided one-on-one services and training on garden beds to elders of the Coeur d'Alene Reservation and community members. Food security issues were addressed through team members' participation in the Walla Walla Food Summit and the Palouse-Clearwater Food Summit.
Efforts to integrate education about small farms, community food systems, and food and nutrition are an important focus for the small farms team. In collaboration with the community development and health and nutrition teams, UI Extension is building an organized effort to address complex issues common to all of these teams.

2. Brief description of the target audience

Target Audiences

The primary target audience includes established and prospective small-acreage farmers, specialty crop producers, processors, ranchers, marketers, and agencies. This includes small-acreage landowners who want to learn how to manage their land in a sustainable manner to protect natural resources. An emerging audience includes consumers who want more information on where to find local food and want to learn more about organic production and eco-labeling, as well as those who are interested in learning more about rural issues. Additional target audiences include local food groups, consumers of local foods, food system participants (e.g., buyers, chefs, cooks, eaters, suppliers, etc.), cooperative members, farmer's market shoppers, Master Gardeners, value-added food producers, schools, local nonprofits, hobby farmers, small flock/backyard poultry producers, small ruminant producers, community leaders, general public members, and Extension educators. Audiences for commercial produce safety include anyone growing fresh fruits, nuts, vegetables, and herbs covered under the Food Safety and Modernization Act Produce Safety Rule.

Underserved Audiences

The team provides resources for people with small acreages who wish to start, continue, or expand specialty horticultural enterprises. Women, Hispanic, and limited resource farmers are often in this group.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	14312	447691	2242	6805

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	1	1	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Small Farms / Marketing Conferences

Year	Actual
2017	1

Output #2

Output Measure

- Beginning Small Farming & Ranching Course

Year	Actual
2017	4

Output #3

Output Measure

- Small Acreage Business Planning / Entrepreneurship Courses

Year	Actual
2017	3

Output #4

Output Measure

- Land Stewardship courses

Year	Actual
2017	3

Output #5

Output Measure

- Tours, Demonstrations and Field Days

Year	Actual
2017	16

Output #6

Output Measure

- Workshops and Short Courses

Year	Actual
2017	30

Output #7

Output Measure

- Farmers Market Workshops/Trainings with ISDA

Year	Actual
2017	4

Output #8

Output Measure

- Short Topic Webinar

Year	Actual
2017	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Producers and landowners increase their knowledge about natural resource management, sustainable farm production, marketing and/or business management principles and practices through University of Idaho Extension programming. Indicator: Number of participants completing workshops, farm tours, short courses or in-depth courses such as Living on the Land, Stewardship of Small Acreages, Sustainable Small Acreage Farming or Agricultural Entrepreneurship.
2	O: Producers and landowners adopt recommended land management and production practices as a direct result of participation in University of Idaho Extension programming. Indicator: Number of documented best management practices adopted by landowners and producers after participating in educational programming or receiving instructional resources.
3	O: Producers and Small Acreage Landowners who have participated in Extension programs serve as motivating community leaders and models for sustainable practices and small farm enterprise success. Indicator: Number of past program participants who volunteer to teach classes or workshops, host tours of their properties, or act as formal and informal mentors to new program participants.
4	O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.
5	O: More privately owned land in Idaho is being managed to reduce negative environmental impacts and conserve natural resources. Indicator: Number of acres managed by participants in Extension small acreage programming.
6	O: Small acreage producers start or maintain a sustainable business enterprises that contribute to local food systems as a result of participating in University of Idaho Extension programming. Indicator: Number of course graduates and program participants actively marketing their farm products at farmers markets, through CSAs or other direct or semi-direct marketing channels.
7	O: Extension faculty work to support, facilitate and mentor community food systems organizations and initiatives across Idaho. Indicator: Number of food systems related groups initiating and collaborating on projects serving their communities.

Outcome #1

1. Outcome Measures

O: Producers and landowners increase their knowledge about natural resource management, sustainable farm production, marketing and/or business management principles and practices through University of Idaho Extension programming. Indicator: Number of participants completing workshops, farm tours, short courses or in-depth courses such as Living on the Land, Stewardship of Small Acreages, Sustainable Small Acreage Farming or Agricultural Entrepreneurship.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	488

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Informed and educated producers and landowners are more likely to care for their land sustainably, avoid risk in small-farm enterprises, and add to the quality of life in rural and urban communities. There is a great need for high quality, research-based information to serve this audience, many of whom are new to farming or land stewardship.

What has been done
University of Idaho Extension and program partners provided numerous opportunities for this kind of learning to take place regionally and in southwestern Idaho. These included workshops, classes, and tours offered through the Cultivating Success Program.

Results
Over 158 individuals attended programs that increased their knowledge on topics related to small-acreage land stewardship and sustainable small-farm enterprises. Participants also learned new strategies that they planned to put into place to benefit their land and their enterprises into the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
604	Marketing and Distribution Practices

Outcome #2

1. Outcome Measures

O: Producers and landowners adopt recommended land management and production practices as a direct result of participation in University of Idaho Extension programming. Indicator: Number of documented best management practices adopted by landowners and producers after participating in educational programming or receiving instructional resources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	24

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Small-acreage landowners and small-farm producers collectively manage many thousands of acres in Idaho. Those lacking knowledge about land stewardship practices such as the management of soil, weeds, pasture, nutrients, management, livestock grazing, water, and other topics are at greater risk for damaging delicate ecosystems, negatively impacting neighbors and losing property value.

What has been done
Courses such as Living on the Land cover dozens of best practices related to the sustainable stewardship of small-acreage properties. Cultivating Success and other small-farm courses, workshops, and tours include practical information on the sustainable management of crop and livestock systems. One-on-one consultations with landowners and producers often incorporate these best practices as well.

Results
Participants in this year's classes, workshops, and tours learned about integrated pest management, soil fertility, erosion control, noxious week management, crop rotations, nutrient management, rotational grazing, composting, and other related topics. Evaluations show an increase in knowledge and planned implementation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants

Outcome #3

1. Outcome Measures

O: Producers and Small Acreage Landowners who have participated in Extension programs serve as motivating community leaders and models for sustainable practices and small farm enterprise success. Indicator: Number of past program participants who volunteer to teach classes or workshops, host tours of their properties, or act as formal and informal mentors to new program participants.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	24

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmer mentors are ambassadors of sustainable small-farm practices in their communities. Farmers prefer to learn from other farmers. By hosting tours of their properties, experienced farmers motivate others to adopt sustainable practices.

What has been done
Six farmers hosted on-farm workshops at four properties. One farmer hosted a public tour of their farming operation, which included a tour of their packing shed and production fields. In addition, one farmer and one private landowner hosted a land assessment workshop at their property.

Results
Beginning and experienced farmers and technical assistance providers increased their knowledge of on-farm food safety practices, skills for identifying and mitigating on-farm food safety risks, land assessment knowledge and skills, and general sustainable agriculture production methods.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants

Outcome #4

1. Outcome Measures

O: An increase in the number of trained graduate students prepared to enter the workforce. I: Number of M.S. and Ph.D. candidates relevant to this topic team.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

O: More privately owned land in Idaho is being managed to reduce negative environmental impacts and conserve natural resources. Indicator: Number of acres managed by participants in Extension small acreage programming.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1121

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Land owners are faced with managing lands to protect natural resources. For example, land owners want to prevent soil resource loss for their own land productivity and prevent soil loss to preserve local and regional water quality and fish habitat.

What has been done
The Cultivating Success team provided a land resource evaluation workshop for landowners and those seeking land. Collaborating with Rural Roots (nonprofit), a monthly talk has been offered to

farmers extending university research and farmer-to-farmer knowledge. Collaboration with colleagues resulted in hosting a pasture management workshop. Landowners were also connected with several resources at other agencies such as NRCS.

Results
Multiple landowners in each program stated on evaluations that they would implement something they learned in the course. Learning about soil health helps those managing pasture to implement new practices, produce healthier forage, and thus provide animals with a healthier diet. Managing weeds also contributes to healthier pastures and protection of soil and water resources. In the land resource evaluation workshop, recipients learned how to match enterprises to a farm type. These future and existing farmers will use fewer inputs and have higher productivity and better profit in their operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants

Outcome #6

1. Outcome Measures

O: Small acreage producers start or maintain a sustainable business enterprises that contribute to local food systems as a result of participating in University of Idaho Extension programming. Indicator: Number of course graduates and program participants actively marketing their farm products at farmers markets, through CSAs or other direct or semi-direct marketing channels.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Empowering individuals and families to create sustainable farm-based enterprises is an important goal of all our programs. These businesses contribute to the local economy and to food security

in our communities.

What has been done
Through conversations and follow-up interviews with past program participants and visits to the local farmers markets and farm stands, team members were able to identify numerous graduates of their programs or individuals for whom they had provided private consultations and who have started or are sustaining small-acreage, farm-based businesses.

Results
At least 18 graduates of our classes, workshops, or programs, or individuals who have received private consultation are actively marketing farm products through area farmers markets, community supported agriculture programs, or direct to restaurants, schools, or other marketing channels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices

Outcome #7

1. Outcome Measures

O: Extension faculty work to support, facilitate and mentor community food systems organizations and initiatives across Idaho. Indicator: Number of food systems related groups initiating and collaborating on projects serving their communities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	13

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Access to fresh produce and healthy food is an issue in our region. The Backyard Harvest is a nonprofit organization that distributes produce from local producers and gardeners to food banks and pantries in the region and helps SNAP recipients shop at local farmers markets through its Shop the Market program.

What has been done
An extension expert works on the board of Backyard Harvest, providing leadership and connecting growers, community members, and Backyard Harvest staff to help enable distribution of available fresh food to those who do not have access.

Results
Approximately 23,000 pounds of produce was distributed to area food banks and pantries and $11,600 was paid to farmers via Shop the Market, which helps seniors and SNAP recipients spend their benefits at area farmers markets. The impact is that food bank recipients and SNAP recipients, families with young children living in poverty, and seniors on reduced incomes all have better access to fresh food.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
202	Plant Genetic Resources
205	Plant Management Systems
604	Marketing and Distribution Practices

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations
- Competing Programmatic Challenges

Brief Explanation

Harsh winter weather, including excessive snowfall, negatively impacted producers' participation in educational workshops between January and March 2017. Several producers who registered for workshops had to cancel their participation at the last minute due to road conditions, flooding, and increased care of livestock and season extension facilities. In addition, passage and implementation of the Food Safety Modernization Act has created a need and an opportunity for additional food safety education for producers of all scales.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Post-course evaluations, completed by all 21 participants of the Farm Financial Fitness workshops, rated the course either Very Good (38%) or Good (62%). Participants indicated an increase in knowledge of 10 key financial topics including net worth, depreciation, opportunity costs, working capital, owner equity, non-cash expenses, and various financial ratios. When asked how prepared they were to continue working on the main topics presented in the class, most ranked themselves at 4.0 out of 5.0 for all four topics: developing enterprise budgets (61%), developing cash-flow budgets (75%), creating a balance sheet (62%), and creating an income statement (67%).

Key Items of Evaluation

We have a small-acreage farmer husband-and-wife team in Bonner County that just started their small lavender farm about a year ago. The wife attended our Starting Your Sustainable Farm (SYSSF) short course as well as the Farmers Financial Fitness class. She also became a certified Master Gardener this year. She has been very smart in her business practices, which I believe is partly her nature, but also due to information she learned from the extension programs. This year, she has been selling her award-winning lavender oil at the local farms market. The award will help in marketing her products.

V(A). Planned Program (Summary)

Program # 14

1. Name of the Planned Program

Global Food Security and Hunger: Sugar Beets & Minor Crops

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		0%	
111	Conservation and Efficient Use of Water	5%		0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	5%		5%	
202	Plant Genetic Resources	10%		5%	
204	Plant Product Quality and Utility (Preharvest)	0%		10%	
205	Plant Management Systems	15%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	15%		5%	
212	Pathogens and Nematodes Affecting Plants	15%		25%	
213	Weeds Affecting Plants	15%		10%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	0%		5%	
216	Integrated Pest Management Systems	10%		10%	
402	Engineering Systems and Equipment	0%		5%	
502	New and Improved Food Products	0%		5%	
511	New and Improved Non-Food Products and Processes	0%		5%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%		5%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	11.0	0.0
Actual Paid	2.4	0.0	8.8	0.0

Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
92299	0	308100	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
92299	0	308100	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
183179	0	4643645	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 2,890 direct educational contacts through Extension and 644,991 indirect contacts. Team members published five articles in refereed journals and three Extension publications, and they participated in projects funded by $323,022 in grants. Team members were active in six counties.
The sugar beet and minor crops team integrated field research, demonstration, and outreach education primarily related to crop pests, diseases, weeds and weed control, rotational studies, and irrigation systems. Team members conducted numerous on-farm consultations for nutrient management and disease and pest control. They conducted field studies and tours in collaboration with growers and in Idaho Agricultural Experiment Station fields to study pesticides, soil moisture sensors, management of insect pests and their natural enemies, the effect of tillage, and sugar beet yield and quality from full and different deficit irrigation. Team members also completed thirteen magnitude-of-residue pesticide trials for the University of Idaho IR-4 Field Research Center. A quinoa study was conducted in Aberdeen and Tetonia with built-in collaboration with industry.
Pest diagnostic services and treatment recommendations were provided for growers. UI Extension faculty conducted and coordinated pest monitoring and pest survey activities. They studied economically important pests and pathogens and devoted significant efforts to weed management and development and extension of knowledge about Integrated Pest Management (IPM) tools. Educators offered pesticide applicator re-certification and pesticide safety training, including pesticide applicator recordkeeping, in both English and Spanish.
An ongoing canola study has been aimed at understanding the incidence and distribution of Leptosphaeria maculans, the causal agent of blackleg. A survey of canola fields across northern Idaho was completed in the summer of 2017 and isolates of L. maculans are currently being characterized to determine species diversity and identify the avirulence genes present in the population. Using this information, Extension researchers will screen lines of canola in the University of Idaho canola breeding program for resistance to blackleg. Resistance genes will be incorporated into new varieties in the future to maximize disease resistance in regionally adapted germplasm.
Team members shared new and practical information through Extension workshops, at commodity schools, and through presentations at grower and industry meetings and conferences. A few workshops offered this year were on herbicide resistance, comparison of varied tillage systems, grape diseases, and bean diseases.

2. Brief description of the target audience

Our target audience includes growers of minor crops in Idaho and the western United States, commercial operators, agronomists, industry representatives, Idaho State Department of Agriculture and other western departments of agriculture, federal and state agencies, regional land-grant institutions, pesticide registrants, crop advisers, extension educators, scientists, lenders, and farm workers. Other targeted audiences include sugar beet growers, growers of minor crops, and those who advise growers (e.g., sugar industry representatives and agronomists, chemical companies, seed companies, and consultants).

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2872	644991	18	0

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

Patent Applications Submitted

Year: 2017

Actual: 1

Patents listed

Issued: White Gold (mustard) 201400386

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	3	9	12

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Extension workshops, schools and conferences, planned and organized

Year	Actual
2017	8

Output #2

Output Measure

- Field tours, demonstration projects, planned and organized

Year	Actual
2017	6

Output #3

Output Measure

- Applied and basic laboratory and field research experiments

Year	Actual
2017	31

Output #4

Output Measure

- Professional invited presentations.

Year	Actual
2017	6

Output #5

Output Measure

- Presentations at Extension Workshops, schools and conferences and non-extension venues

Year	Actual
2017	32

Output #6

Output Measure

- Sugarbeet Costs and Returns Estimates

Year	Actual
2017	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Growers use best practices in the production of sugar beets and minor crops. I: Number of Idaho growers indicating adoption of recommended practices (follow-up survey data).
2	O: Growers use best practices in regard to irrigation management and nutrient use efficiency in the production of sugar beet and minor crops. I: Number of Idaho growers indicating adoption of recommended practices (follow-up survey data).
3	O: Producers have increased knowledge of pest management and water / nutrient management practices that affect the environmental and economic sustainability of sugar beet and other minor crop production. I: Number of participants who demonstrate increased knowledge following Extension education programs.

Outcome #1

1. Outcome Measures

O: Growers use best practices in the production of sugar beets and minor crops. I: Number of Idaho growers indicating adoption of recommended practices (follow-up survey data).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	88

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In order for growers to maintain labels for chemicals, to minimize the risk of resistance, and to safeguard the environment, they need to use chemicals properly and judiciously.

What has been done
Information about pest outbreaks and research-based control was disseminated through the PNWPestAlert.net website.

Results
Some of the impacts measured from a year-end survey include the following: 26% of survey respondents were able to reduce the number of sprays to their crops; pesticide applications were more effective and timely 42% of the time; and 50% of subscribers increased the use of field scouting to document pest levels. Since the program began 15 years ago, website subscribers are using 5.76% less pesticides on their crops than they were before they used the pest alert network. If this decrease in chemical use were extrapolated to the area impacted by PNWPestAlert.net for just onions, (USA Onions, 2016), potatoes (USDA, 2015), and sugar beets (USDA, ERS, 2016), on an annual basis it would mean approximately 29,897 fewer gallons of chemicals were put into the environment, saving growers about $6,161,626 dollars.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources

205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

O: Growers use best practices in regard to irrigation management and nutrient use efficiency in the production of sugar beet and minor crops. I: Number of Idaho growers indicating adoption of recommended practices (follow-up survey data).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	31

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Soil health is important for growers if they are to maintain yields and remain economically viable over time. In addition, soil health is important to maintain or increase production to feed an ever-increasing population.

What has been done
The Soil Health Symposium is a multistate educational collaboration held in Ontario, Oregon each February. The purpose of the symposium is to educate local growers about sustainable production practices that they can use on their farms to improve the health of their soil.

Results
Below are some of the topics (with impacts) that were taught at the 2017 symposium: 1) participants indicated that they increased their knowledge of the use of cover crops by 37%; 2) 73% said they were more likely to use cover crops in their farming operations as a result of this symposium; 3) participants indicated their knowledge of nematode resistant crops and biofumigation increased by 67%; 4) 53% said as a result of this symposium they were more likely to use nematode resistant crops and biofumigation in their farming operations; 5) participants indicated their knowledge of riparian friendly grazing management practices increased by 54%;

and 6) 44% of participants indicated they were likely to incorporate riparian friendly grazing management practices they learned about at the symposium into their farming operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
402	Engineering Systems and Equipment

Outcome #3

1. Outcome Measures

O: Producers have increased knowledge of pest management and water / nutrient management practices that affect the environmental and economic sustainability of sugar beet and other minor crop production. I: Number of participants who demonstrate increased knowledge following Extension education programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	154

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Pest management and crop protection issues are extremely important from economic, environmental, and human health perspectives. Based on University of Idaho crop enterprise budgets, pesticide expenses range from 18% to 39% of the operating costs of high-valued crops like alfalfa seed, onions, potatoes, and sugar beets. Using an IPM-based decision-making process for pesticide applications may help reduce overall costs to the producer and pesticide impacts to workers and the environment.

What has been done
PNWPestAlert.net was developed as a way to quickly disseminate research-based pest control information about pest outbreaks occurring in Treasure Valley crops.

Results
From educational information received through PNWPestAlert.net, 49% of website survey respondents increased their use of IPM strategies to control pests (e.g., using beneficial insects,

installing pheromone traps, rotating chemistries, etc.).

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
202	Plant Genetic Resources
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
402	Engineering Systems and Equipment

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Errors made during the establishment, maintenance, and harvest of field research experiments)

Brief Explanation

In 2017, there were a few minor errors made during the establishment, maintenance, and harvest of sugar beet and dry bean field research experiments. These included applying herbicides to wrong plots and failure to collect data such as weed control or crop injury evaluations in a timely manner. These errors were recognized and notes were made to ensure the data analysis would be altered to accommodate the errors.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Subscribership to the PNWPestAlert.net website increased 6.8% from 2016 to 2017. There are now 1,637 subscribers. In 2017, there were 71,525 visits to the website, and 69,183 emails and 20,838 text messages were sent containing pest management information. In 2017, some of the more prominent posted alerts pertained to potato psyllid, corn earworm, barley yellow dwarf virus, iris yellow spot virus, and regulatory announcements.
The following are some of the impacts measured from a year-end survey: 26% of survey respondents were able to reduce the number of sprays to their crops; pesticide applications were more effective and timely 42% of the time; and 50% percent of the subscribers

increased the use of field scouting to document pest levels.
Since the PNW Pest Alert Network website began 15 years ago, website subscribers are using 5.8% less pesticides on their crops than they were before they used the network. If this decrease in chemical use were extrapolated to the area impacted by PNWPestAlert.net for just onions (USA Onions, 2016), potatoes (USDA, 2015), and sugar beets (USDA, ERS, 2016), on an annual basis it would mean approximately 29,897 fewer gallons of chemicals were put into the environment, saving growers about $6,161,626 dollars.

Key Items of Evaluation

At our 2017 dry bean school, my graduate student presented the work she is doing to explore weed management with different dry bean seeding rates in narrow row, dry bean production. Based on her results, several growers are now trying the concept of planting dry beans in narrow rows as compared to the standard 22-inch row spacing.

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

Childhood Obesity: 4-H Youth Development

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
724	Healthy Lifestyle	20%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	20%		0%	
806	Youth Development	60%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	19.3	0.0	0.0	0.0
Actual Paid	22.9	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
390797	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
390797	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2235310	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 191,656 direct educational contacts through Extension and 184,211 indirect contacts. Team members published one article in a refereed journal and twelve Extension publications, and they participated in projects funded by $342,364 in grants. Team members were active in all Idaho counties.

Project 1: 4-H Science

Several 4-H projects help youth and adults increase science skills. Animal science programs and projects integrate science processing skills and quality-assurance practices. Program areas include animal evaluation, hippology, and livestock skill-a-thons at the local and state levels. Several robotics programs and events are held at the county, district, and state levels. Other science programs include participation in 4-H National Youth Science, rocket experiments, CSI Science Camp, Tech Wizards programming, food science, crime and spy science, and natural resource education.

Project 2: Healthy Living

Youth and adults increase knowledge and practice of healthy living skills through a wide variety of camps, presentations to school groups, mini-classes, projects, and other activities held throughout the state. Examples include cooking classes, Healthy Afterschool Snacks, Healthy Living Teen Advocates, Positive Body Image, and the 4-H Food Smart Families program.

Project 3: Youth and Adult Leadership and Volunteer Development

Throughout the state, team members work to recruit, train, and retain youth and adult volunteers at both the state and local level. Volunteers are trained in leadership and citizenship skills. There are many opportunities specifically for teens to be involved and develop their leadership skills, including the Ambassador Conference, Know Your Government Conference, Teen Conference, 4-H Camp Teen Leader Training, Teen Builders Club, retreats designed for teens, and other varied leadership programs for youth.

Project 4: Reaching Underserved Audiences

Team members continue outreach to underserved youth and adults in the University of Idaho 4-H Youth Development programs through afterschool programs, day camps, community events, and targeted programs. Examples include programs for Hispanic and Native American youth, as well as young people in juvenile corrections facilities: Rockin' the Rez Summer Youth Camp, Coeur d'Alene School Culture Day, free educational events associated with the USDA's Summer Food Service Program, Latino Future Leaders, Hispanic Youth Symposium, Hispanic Youth Leadership Summit, a Village Project targeting Hispanic migrant youth, and the Juvenile Corrections Center University Fair in St. Anthony, Idaho, which gave at-risk youth an opportunity to learn about attending and paying for college at regional institutions. A focus this year has been reaching out to high school students and encouraging them to make plans to attend some form of postsecondary education. Scholarship Workday is a University of Idaho Extension program designed to guide youth and their families through the process of finding and applying for scholarships. Build Your Future is a newly introduced program for first-generation high schoolers.

2. Brief description of the target audience

- Idaho youth and their families
- Youth in school enrichment and afterschool programs
- Low-income youth and families
- At-risk youth, including youth at juvenile corrections centers and on intensive supervised probation
- Teens at risk for drug or alcohol use
- Refugees
- Children and families with military ties
- Hispanic youth and adult volunteers
- American Indian youth and adult volunteers
- 4-H volunteers and members
- Fair participants and judges

- 4-H supporters and stakeholders
- 4-H livestock buyers
- Beef cattle producers
- FFA members and advisors
- Adult and youth volunteers
- Regional volunteer specialists from other western states
- Teachers and out-of-school instructors
- After-school programs and in-school enrichment
- Summer camp and day camp participants
- Youth development staff
- Fair board members
- Extension educators
- Community leaders and businesses
- Community members

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	197544	133135	208195	51076

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	12	1	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of youth in educational classes, workshops, trainings, seminars taught (individual teaching contacts)

Year	Actual
2017	43779

Output #2

Output Measure

- Number of volunteers in educational classes, workshops, trainings, seminars taught. (individual teaching contacts)

Year	Actual
2017	3794

Output #3

Output Measure

- Number of opportunities to promote 4-H Youth Development (Not the circulation; Enter the number of publications [not Ext. or Research], newsletters, columns, radio PSA's, radio/TV appearances, etc. written or developed.)

Year	Actual
2017	294

Output #4

Output Measure

- Number of actual educational classes, workshops, trainings, seminars taught

Year	Actual
2017	1380

Output #5

Output Measure

- Number of 4-H clubs or groups. Each county enters their county numbers from the ES-237

Year	Actual
2017	1041

Output #6

Output Measure

- Number of youth attending state 4-H events (lead contact for event enters data.)

Year	Actual
2017	2323

Output #7

Output Measure

- Number of volunteers attending county, multi-county, district, state, regional, and national events (Lead contact for event enters number attending)

Year	Actual
2017	3213

Output #8

Output Measure

- Number of hits on the web site and social media sites each year (one report per county)

Year	Actual
2017	119197

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percentage of interest and engagement in Science as measured by 4-H Common Measures. Indicator: Youth will express interest and be engaged in Science related activities
2	Number of youth who choose food consistent with the Dietary Guidelines through increased knowledge of healthy beverage choices and/or nutrient rich foods as measured by 4-H Common Measures. Indicator: Number of program participants who are able to identify what a nutrient rich food is and/or healthy beverage is and why they are healthy choices.
3	Increase the number of volunteers by 2% in each county, per year to reflect the needs of 4-H POW project areas. Indicator: Total number of volunteers per county, as accounted for on the annual ES-237 volunteer categories.
4	Increase adult participation in relevant positive youth development, leadership, and content-related training. Indicator: Total number of adults in your county who attended training in positive youth development, content-related training, and leadership related training.
5	Program changes and cultural climate support creating access for underserved audiences to participate in 4-H Youth Development. Indicator: Number of adapted programs making accommodations for a specific unique audience.
6	Percentage of youth who make positive choices as measured by 4-H Common Measures. Indicator: Youth will demonstrate responsibility, critical thinking, and problem solving skills through informed decision making.
7	Percentage of youth who increase positive attitudes and aspiration towards Science as measured by 4-H Common Measures Indicator: Youth will express positive attitudes about Science.
8	Percentage of youth who develop science skills and abilities as measured by 4-H Common Measures. Indicator: Youth will demonstrate a capacity for science process skills.
9	Increase support for underserved populations by developing programs specifically targeted for underserved youth. Indicator: The number of partnerships through Extension and county offices with non-UI funded organizations, businesses, and agencies.
10	Increase youth participation in leadership training. Indicator: Total number of youth in your county who attend leadership training, including positive youth development.
11	Number of youth who improve physical activity choices through increased exposure to physical activity during 4-H events and activities as measured by 4-H Common Measures. Indicator: Number of program participants who participate in at least 30 minutes of physical activity during a 4-H event and/or activity.

Outcome #1

1. Outcome Measures

Percentage of interest and engagement in Science as measured by 4-H Common Measures. Indicator: Youth will express interest and be engaged in Science related activities

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	541

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Youth on the reservation carry the keys to the future and will become leaders in their community. The Coeur d'Alene Tribe has established cutting edge technology and science departments, but there are not enough young people returning to the reservation to enter these careers. Instead, the tribe outsources to larger surrounding cities to find personnel.

What has been done
Youth in the afterschool programs, the tribal school, and the Rockin' the Rez Summer program are offered STEM-focused projects from the University of Idaho's Coeur d'Alene Reservation office year-round. This year, the theme for the 4-H National Youth Science Day was Incredible Wearables. Other projects offered include circuitry and electricity, rocketry and aerospace, LEGO robotics, ethnobotany, forestry, and food science.

Results
Youth continue to grow in interest and mastery of the STEM disciplines. Ten youth were invited to participate in an invitation-only, NASA Youth Camp this past summer in Warm Springs, Oregon.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
806	Youth Development

Outcome #2

1. Outcome Measures

Number of youth who choose food consistent with the Dietary Guidelines through increased knowledge of healthy beverage choices and/or nutrient rich foods as measured by 4-H Common Measures. Indicator: Number of program participants who are able to identify what a nutrient rich food is and/or healthy beverage is and why they are healthy choices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1816

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Tribal youth are in need of education involving selection of nutrient rich foods and beverages to increase health and decrease obesity rates.

What has been done
4-H program educators offered and evaluated approximately 125 healthy cooking and lifestyle classes from October of 2016 to August of 2017.

Results
Approximately 1600 youth learned how to select healthier foods and beverages for their daily diets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
806	Youth Development

Outcome #3

1. Outcome Measures

Increase the number of volunteers by 2% in each county, per year to reflect the needs of 4-H POW project areas. Indicator: Total number of volunteers per county, as accounted for on the annual ES-237 volunteer categories.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1316

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Volunteers are the core workforce of 4-H. Despite the best efforts of staff, the majority of positive youth development is handled by volunteers. This makes the recruitment and training of volunteers essential to program growth. Each volunteer serves as a key communication link between 4-H clubs and youth by providing educational services and outreach.

What has been done
Each year, new volunteers are recruited through community engagement. Local service organizations and stakeholders are consistent sources of new volunteers. A targeted group of potential new volunteers is returning alumni. This group has been key for program growth along with alumni who now have youth becoming involved in the program.

Results
Kootenai County increased its adult volunteers from 307 in the 2015-16 year to 436 in the 2016-17 year. This increase of 129 volunteers is a 42% increase for the program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4

1. Outcome Measures

Increase adult participation in relevant positive youth development, leadership, and content-related training. Indicator: Total number of adults in your county who attended training in positive youth development, content-related training, and leadership related training.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	902

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
4-H adult volunteers are the primary contact for many youth at club meetings. It is important to adequately train volunteers to serve the needs of youth in the community effectively and responsibly. Adult volunteers must be equipped to handle club administration and have educational integrity in working with youth.

What has been done
Each month, a training is held in conjunction with the Gem/Boise County Leaders' Council meeting. This training series exposes volunteers to program updates, new curriculum, administration, and strategies for positive youth development. Volunteers are also encouraged to take advantage of community-based resources and opportunities for personal and professional growth.

Results
While participation varies month to month, the overall impact has been positive. Volunteers are continually acquiring new skills to better facilitate positive youth development. A focus on promoting new curriculum and program updates has helped to energize volunteers. As many volunteers have served for extended terms, there has been some resistance to attending the training series and program updates; however, with strong support from stakeholders, they are being further engaged and encouraged to participate.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
806	Youth Development

Outcome #5

1. Outcome Measures

Program changes and cultural climate support creating access for underserved audiences to participate in 4-H Youth Development. Indicator: Number of adapted programs making accommodations for a specific unique audience.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	168

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
While the traditional 4-H structure continues to be a vital delivery method, it often struggles to serve underserved audiences. Despite ongoing recruitment of underserved populations, socio-economic factors limit success. In serving these audiences, the impact of positive youth development is of great community need.

What has been done
To develop an adaptive program that is better able to reach underserved audiences, traditional delivery methods had to be evaluated for effective impact on the community. In assessing these needs, 4-H enrichment and day camps have shown success in reaching both traditional and underserved audiences. Partners and resources are being added to expand the impact of the 4-H enrichment program. Day camps and workshops have been revived as a core initiative for program impact.

Results
Despite initial resistance to these delivery methods, the impact on positive youth development has been overwhelming. The 4-H program has been better able to reach underserved audiences and meet new and emerging community needs. By utilizing 4-H curriculum in non-traditional delivery methods, additional opportunities to experience the benefits of 4-H are available to all area youth. Both day camps and 4-H enrichment have been integrated into the traditional 4-H program to better serve members and volunteers. As these programs become more established in the community, they are becoming a driving force for program growth and development. Many youth and volunteers have expressed interest in more diverse projects to offer at the club level. The programs also facilitate the recruitment and retention of new and established members and volunteers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

Percentage of youth who make positive choices as measured by 4-H Common Measures. Indicator: Youth will demonstrate responsibility, critical thinking, and problem solving skills through informed decision making.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	227

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Youth need opportunities to be able to make good decisions. When youth do not have opportunities to make good decisions, research indicates those youth participate in risky behavior. This causes a negative impact in the community.

What has been done
Youth were engaged in a 4-H camp with international youth, providing all the youth an opportunity to lead the group and share ideas.

Results
In a survey using Common Measures, 62.5% of participants indicated that 4-H is a place where they have a chance to be a leader. Also, 93.75% of the youth indicated that 4-H is both a place where they learn about ways to help their community and a place where they feel they belong. Additionally, 81.25% indicated that 4-H is a place where they get to help make group decisions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
806	Youth Development

Outcome #7

1. Outcome Measures

Percentage of youth who increase positive attitudes and aspiration towards Science as measured by 4-H Common Measures Indicator: Youth will express positive attitudes about Science.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	449

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Program managers, funders, and administrators want to know if the 4-H Science programs impact youth attitudes toward the sciences.

What has been done
Extension worked with five counties to implement 4-H Common Measures, which measure youth attitudes and aspirations towards science.

Results
Youth participating in 4-H Science programs reported an improved attitude toward science as a result of their participation. Youth aspirations toward science careers resulting from their experiences in 4-H science programs was only slightly positive, indicating that while attitude was very positively impacted, youth were slightly less positively inspired to pursue science careers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
806	Youth Development

Outcome #8

1. Outcome Measures

Percentage of youth who develop science skills and abilities as measured by 4-H Common Measures. Indicator: Youth will demonstrate a capacity for science process skills.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	343

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Shoshone-Bannock Tribe on the Fort Hall Reservation has a strong desire to engage youth in agriculture since agriculture is a strong part of their heritage and culture. The Tribe also derives income from agricultural-based enterprises on the Fort Hall Reservation. The Tribe would like to see more young people become active in agricultural endeavors and opportunities available on the Fort Hall Reservation.

What has been done
Extension educators developed three "Tribal Youth in Agriculture" classes. They taught science-based classes related to raspberry, lamb, and swine production.

Results
Approximately 60 students learned how to grow and/or raise different agricultural products. They learned about specific processes that were used to get wholesome food and products to them. They now have an increased awareness of the science behind agriculture and the food they eat.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
806	Youth Development

Outcome #9

1. Outcome Measures

Increase support for underserved populations by developing programs specifically targeted for underserved youth. Indicator: The number of partnerships through Extension and county offices with non-UI funded organizations, businesses, and agencies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Twin Falls County would like to increase the number of positive youth development opportunities available to underserved populations.

What has been done
Additional funding was secured to support part-time staff to provide programming to Magic Valley Boys and Girls Clubs (360 youth), the Harrison School 21st Century Community Learning Center (125 youth), the Hansen 21st Century Community Learning Center (75 youth), robotics clubs at Poppelwell School in Buhl (36 youth), and to homeschool audiences (30 youth) in STEM and healthy living.

Results
This $26,000 increase in county funding for part-time staff extended Extension's reach to 630 under-served youth.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
806	Youth Development

Outcome #10

1. Outcome Measures

Increase youth participation in leadership training. Indicator: Total number of youth in your county who attend leadership training, including positive youth development.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	314

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Increasing the number of youth who are trained in leadership and positive youth development increases the likelihood that youth will continue in leadership roles in 4-H and other youth organizations throughout their lifetime.

What has been done
We invited 4-H youth (ages 13 and older) who had been in 4-H for one or more years to participate in this program. The youth met with the Extension educator six times throughout the year to learn about leadership roles, program planning, recruitment, speaking with news sources or members of the public, and 4-H awareness.

Results
Seven youth completed the program plus projects that included leadership in 4-H clubs (working with youth and volunteers to teach), leadership at day camps, and 4-H awareness and recruitment activities. Youth reported that they are now more comfortable leading lessons, working with youth, working on promotional campaigns, and interacting with the public.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #11

1. Outcome Measures

Number of youth who improve physical activity choices through increased exposure to physical activity during 4-H events and activities as measured by 4-H Common Measures. Indicator: Number of program participants who participate in at least 30 minutes of physical activity during a 4-H event and/or activity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	832

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity and lack of physical activity among youth is on the rise in the United States. Therefore, it is important for youth to have opportunities to participate in physical activities to help them lower their risk of obesity and other health-related problems.

What has been done
Teton County 4-H offered over 50 hours of physical education programming through archery and shooting sports, Cloverbud, gardening, and hiking clubs. Club activities integrated fitness within club requirements so that physical activity was not viewed as "exercise" but was instead viewed as "fun."

Results
Over 75 youth received 2-4 hours of physical activity each week through 4-H club offerings. Physical activity was not viewed as arduous exercise but was simply a part of the hands-on learning activities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Sick leave for three weeks; Travel time and distance; Volunteer personnel issue significantly influenced programming; Staffing limitations)

Brief Explanation

The primary factors impacting the implementation and expansion of the 4-H STEM programs are funding, lack of volunteers, and efficacy in science programming among 4-H staff. Funding is needed for equipment, which in the STEM fields is perennially updated. Many counties do not have the equipment needed for these programs. Lack of volunteers is possibly the main limiting factor in 4-H STEM programming. Without volunteers, there is no program. Educators have begun outreach efforts to recruit volunteers for STEM programming. Efficacy in STEM programming is also a factor limiting growth in STEM programming as there is a general reluctance to embrace STEM educational topics.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Our 6th-grade Natural Resource Tour had 22 youth participants, 37% of whom had not participated in a 4-H program before. These youth were given a 4-point Likert scale (1=strongly disagree, 4=strongly agree) evaluation based on 4-H Common Measures that included science and citizenship.
Participants agreed that after this program they can successfully work with adults, they learned things that help them make a difference in the community, and they plan to work on projects that better their community. While they also agree that they are excited about new discoveries and want to learn more about science, they disagree that they would like to have a science-related job. However, many of the comments on the survey suggest that they do like topics that revolve around workplaces that require natural sciences. This is an area where educators can create a different teaching strategy to increase the relationship between science and how it works in future career fields.
Using the same Likert scale, teen captains indicated that as a result of this 4-H program they strongly agree that they work well with other youth, can work successfully with adults, learned things that can help them make a difference in their community, are willing to consider others' ideas, learned how to positively deal with stress, and can make alternative plans when necessary. They indicated that they agree they can resolve differences in positive ways, can resist negative social pressures, or are aware of important needs in the community. In relation to science, they reported that they "strongly agree" that they are excited about new discoveries as the camp participants, but they only "agree" that they want to learn more about it, like it, or would like to have a job related to science.

Key Items of Evaluation

This year, my best impact story is related to our teen leadership program. I worked closely with two of our younger leaders to develop more public speaking and outreach skills. Both of these young women have been involved in 4-H for many years as their parents are volunteers and their siblings are 4-H alumni. However they always seem to hang on the outskirts of leadership. One young woman used the skills and talents she learned through the young leader program to set a goal of becoming part of the National O-Mok-See Association royalty court. She used her public speaking skills, horsemanship, and networking skills to achieve this reality and then spent the rest of her summer in our county recruiting youth to the program through radio and newspaper interviews. The other young woman is still shy and quiet, but she used her new skills to create some fun activities that engage non-4-H youth in the fair and she now has a strong teen leader role in our day camps and afterschool programs. Watching these two girls develop into amazing young women and reach their goals using the skills they are learning in 4-H has been very rewarding.

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
0	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
0	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
0	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
0	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
0	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
0	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
0	Tons of feedstocks delivered.