2016 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 113.1 Extension faculty FTEs in outreach education programs and 69.7 research faculty FTEs. The Extension FTEs are contributed by 76 county-based Extension Educators organized into three extension districts and 54 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 $8.8 million in external grant support and have recorded 360,261 direct teaching contacts. Extension faculty produced 49 peer-reviewed Extension publications, 46 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 seven academic units and located at the main campus and off campus Research and Extension centers throughout the state. To summarize research faculty in FY2016, they contributed to 13 program teams (Topic Teams), outputs included 186 publications, 7 plant variety patents issued, 3 patents were filed, and over $34 million in research project expenditures.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	100.0	0.0	67.0	0.0
Actual	113.1	0.0	69.7	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. Several of our counties have complete mailing lists for all households in the county. Recently, a survey was conducted electronically seeking input from stakeholders on the healthy foods, healthy communities priority issue. In some cases, distributing mail surveys to every address in a county has been used during the past several

years. 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 (i.e., nutrition education), Latino community leaders were invited to sessions specifically to help the University better understand how to assess the needs of their communities, including socioeconomic categories of 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 meets their personal needs.

The major stakeholder groups providing input regarding the Idaho Agricultural Experiment Station's (IAES) spectrum of research activities include the following:

• The Dean's Advisory Board was instituted in 2002. This committee is comprised of a spectrum of stakeholder representatives 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 1,000 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 foreign countries.

• Beyond the commodity schools mentioned above, IAES faculty organize and participate in "field days" at each of the IAES's six off-campus Research and Extension centers. They also conduct a number of more focused tours or workshops such as: weed identification, ecology, management and technology at several locations, potato storage research, and tours of the IAES's crop genetic improvement research programs for beans, potatoes, wheat, and the oilseed crops of rapeseed and mustard. Again, 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, and to a lesser extent, 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 IAES program development and delivery. In the course of performing their research, the majority of researchers in the IAES have frequent and substantive contact with stakeholders on their research programs as has been indicated above. An array of inputs regarding program directions and priorities are more informally received in this manner and are subsequently considered and often implemented.

• CALS has also mandated the formation of advisory committees for each of the eight academic departments in CALS. As of 2002, all departments of CALS 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, the 6 departmental advisory committees meet once a year 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 2016, 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 with the Dean's Advisory Board and members of the administration team met with faculty as a group several times throughout the year in each of Idaho's three 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 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.
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, expectant parents or families in financial difficulty). For farmers and ranchers, Extension cooperates 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, with 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 from 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. Many faculty are invited to present to a diversity of organizations such as chambers of commerce, industry stakeholders, and Rotary, where participants are asked for or volunteer input is needed 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 (i.e., 4-H Youth Development and Operation: Military Kids) 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 of these advocate representatives 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 on 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.

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.

Several shifts in emphasis during the past few 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 and continue in 2016. Also in 2016, CALS is continuing efforts to respond to Federal and State agency stakeholders by shifting resources into childhood obesity, hunger, health, youth development 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 2016 includes the creation of one additional food systems educator and three family and consumer sciences (nutrition) educators to help coordinate work in the healthy food/ 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 several years, University of Idaho has greatly increased research and outreach activities related to water because of stakeholder input and the passing of legislation. In 2016, several irrigation trials, demonstrations and presentations at producer meetings 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 to respond to stakeholder needs.

Information acquired statewide 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 community. Information about how to participate in the surveys is often mailed out in newsletters, announced in newspapers, posted on our webpages and on 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 stakeholder input. 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 a greatly increased interest in local food systems, food insecurity, hunger, annual and alternative forage sources, reducing consumption and energy costs associated with irrigation, and improving participation in higher education, particularly for Hispanics. In response, Extension has created four new positions for local food systems education including health and nutrition and CALS is working to create a program of excellence to integrate teaching, research and extension faculty around healthy food, 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. In addition, the Low Elevation Sprayer Application (LESA) technology is being demonstrated and adopted by producers as a method to reduce water usage. We have initiated a number of College Fair events and programming on financing post secondary education 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
2861074	0	2734257	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	2843444	0	2734257	0
Actual Matching	2843444	0	2734257	0
Actual All Other	8021376	0	29277154	0
Total Actual Expended	13708264	0	34745668	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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	8.7	0.0	6.0	0.0
Actual Paid	13.3	0.0	4.0	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**
430491	0	320545	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
430491	0	320545	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1023105	0	2880151	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 19,411 direct educational contacts through Extension and 413,574 indirect contacts. Team members published seven articles in refereed journals, five peer reviewed multi-state Extension publications (PNW), twenty-six scientific peer reviewed publications, and participated in projects funded by $369,874 in grants.
Planned activities include 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 is presented in scientific journals and at professional meetings.
Alfalfa and annual forage production and harvesting activities include:

- 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
- Educating lawmakers and the public
- Popular press and journal articles
- Forages website
- Extension publications

Efficient production management and marketing of livestock activities include:

- Beef Quality Assurance workshops, including some to train-the-trainer
- Pasture management workshops including ventenata control and rejuvenation
- Local Winter Beef Schools, Cowboy Schools, and Forage Schools
- Educational programs targeting young cattle producers
- Applied reproductive strategies in beef cattle, including low stress animal handling
- Workshops and projects related to Trichomoniasis and dystocia

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

Rangeland resource management and utilization activities include:

- Idaho Range Livestock Symposium
- Idaho Weed Conference
- Technology transfer workshops for tribal land managers in Idaho, Montana, and Washington
- Workshops related to range monitoring, mineral status, ventenata biology and management, invasive plant mapping using NetMaps, and invasive plant survey procedures
- Weed education and management plans, including identifying future strategic education and outreach goals for weed management in the state and region.
- Range fire evaluations including one federal fire rehabilitation plan for 10,000 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 is quite varied and includes beef cattle producers and ranchers, tribal and non-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/farmers, federal, state, and local land management agencies, tribal land management agencies, public land grazing allotment permittees, county commissioners, decision makers, conservation groups, consultants, scientists, nonprofit organizations, youth, other university staff and faculty, departments/individuals who have a need for educational programming and projects in livestock and natural resource management.

3. How was eXtension used?

Use of eXtension is determined as individual faculty identify useful resources for their programs.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	17003	411267	2408	2307

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	10	26	36

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Producer schools. (number of schools: multiple sessions of instruction on multiple subjects)

Year	Actual
2016	21

Output #2

Output Measure

- Workshops (including BQA).

Year	Actual
2016	63

Output #3

Output Measure

- Demonstrations and applied research projects.

Year	Actual
2016	37

Output #4

Output Measure

- Popular press articles.

Year	Actual
2016	54

Output #5

Output Measure

- Newsletters; number of issues.

Year	Actual
2016	49

Output #6

Output Measure

- Field days

Year	Actual
2016	22

Output #7

Output Measure

- Presentations at producer meetings

Year	Actual
2016	169

Output #8

Output Measure

- Budgets developed to improve clientele decision making

Year	Actual
2016	7

Output #9

Output Measure

- Curricula developed

Year	Actual
2016	2

Output #10

Output Measure

- Surveys conducted

Year	Actual
2016	6

Output #11

Output Measure

- Tours conducted

Year	Actual
2016	18

Output #12

Output Measure

- Websites created or significantly enhanced (number of sites)

Year	Actual
2016	3

Output #13

Output Measure

- Blogs created and maintained

Year	Actual
2016	1

Output #14

Output Measure

- Trained graduate students

Year	Actual
2016	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Learners will adopt new, accepted, or recommended production practices. I: Number of participants indicating in post-program surveys that they have or intend to adopt recommended practices.
2	O: Learners aquire knowledge and understanding of new, approved, or recommended practices. I: Number of participants citing change in knowledge on evaluation instruments(pre- post-test results) [number of evaluations administered and examined.
3	O: Learners are aware of new, accepted, or recommended production practices and emerging technologies and issues (BQA, NAIS, etc.) I: Number of participants at educational events.
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: Producers possess skills and knowledge about beef quality assurance (BQA). I: Number of Idaho Beef Quality Assurance (BQA) Program certificates awarded.
6	O: Scientific advances in understanding genetic evolution of E. coli O157:H7. I: Reduce human infection.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	344

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Education is needed regarding meat and carcass quality at the producer level.

What has been done
A Cowboy School with Meat and Carcass Quality as the main topic was prepared and implemented in Oneida County, Bear Lake County, and the Fort Hall Reservation. A hands-on demonstration of ultrasounding was given as well as a beef taste testing panel.

Results
Over 50 producers learned about carcass ultrasounding techniques and carcass quality. They learned how technology and genetic selection can improve their beef products and profitability.

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

O: Learners aquire knowledge and understanding of new, approved, or recommended practices. I: Number of participants citing change in knowledge on evaluation instruments(pre- post-test results) [number of evaluations administered and examined.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	680

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A series of Livestock Schools were offered throughout the Magic Valley. These schools focused on BQA education as well as other topics requested by producers.

What has been done
The series of three schools offered BQA education topics presented by Extension educators. There were also topics that had been requested by local producers and those were presented by Extension specialists and industry representatives.

Results
In a post survey of the school, 85% of participants responded that they had a slight to moderate increase in knowledge of the BQA topics on Quality Feed Supply and Proper Health Management and all participants answered that they planned to use the knowledge learned. Following the discussion on genetic selection, surveys were conducted and 96% of participants stated they

moderately to majorly increased their knowledge of genomics, 88% increased knowledge of DNA extraction, and 96% increased knowledge of ?Applying Technology.? Of the participants 85% plan to use this knowledge within the next year including DNA testing of bulls and replacement females. When asked what would they change in their operation they stated they would take a better look at herd genetics, conduct heifer selection by testing, and select replacements based on more than just EPD's.

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

O: Learners are aware of new, accepted, or recommended production practices and emerging technologies and issues (BQA, NAIS, etc.) I: Number of participants at educational events.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2016 5901

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Proper and safe use of pesticides is of concern to everyone whether they are in agriculture or not. Also, cover crop production and soil conservation is of concern to agriculture producers and reducing soil erosion is of national concern and a major focus of USDA programs.

What has been done
Two pesticide applicator recertification programs were conducted and one pre-license training for those seeking an applicator license. Also, several different cover crop meetings were offered with the results of project work.

Results
Pesticide recertification credits were distributed to 1,100 license holders, both private and professional and 20 new licenses were earned by both private applicators and professional applicators. Professional licenses allow holders to find employment or advance in current employment. The cover crop field tour showed producers and agency personnel how cover crops can be adopted in the Magic Valley region and what crop species can be used to achieve varying producer and government program goals.

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: 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: 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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	240

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers needed to see how needles become dull with each injection use. This is important to improve beef quality practices.

What has been done
A presentation and hands-on training exercise was conducted using beef hides and needles. Producers were able to see firsthand how dull needles become with each use.

Results
Forty-eight producers indicated they would change their needles more frequently.

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 #6

1. Outcome Measures

O: Scientific advances in understanding genetic evolution of E. coli O157:H7. I: Reduce human infection.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
How genetic information evolves to generate new phenotypes/species is a central question of biology. Answering this question contributes to our understanding of how E. coli O157:H7 adapts to various conditions such as the bovine or human gastrointestinal tract and farm environments. A famous ongoing long-term evolutionary experiment with E. coli has been done by others. They concluded that E. coli evolves by acquiring numerous random mutations, some unrelated to specific stress, and this history of events 'enable' E coli to evolve new traits. Their work records E. coli proceeding through 33,000 generations over 15 years to 'evolve' the new ability to use citrate (a carbon source) aerobically. We challenged this interpretation and show this is not the case.

What has been done
We show E. coli 'evolve' to use citrate in three steps that occur in a few days. E coli uses the same 3 steps to repeatedly 'evolve' to use citrate aerobically.

Results
The paper that resulted from this work has been published in the Journal of Bacteriology and has been one of the most read since it's publication. The impact of this work is to understand the very basis of how E. coli adapts to new environments. It shows the repertoire of E. coli to 'evolve' is very limited and the most significant result of the long term evolution experiments (years and years to evolve to use citrate aerobically) was an artifact of experimental design.

4. Associated Knowledge Areas

KA Code	Knowledge Area
306	Environmental Stress in Animals
308	Improved Animal Products (Before Harvest)

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 (Pregnancy, moving counties)

Brief Explanation

Currently there has been a huge fluctuation in prices for cattle. Last year in November calves were selling for around $2.00 to $2.20 a pound. Currently those same calves would sell for around $0.95 to $1.15 a pound. This has caused a major stress on cattle producers. The added competition for grazing land and low prices on hay as well as other commodities has impacted producers. Regarding the Intermountain Ag Tech conference, producers in the eastern Idaho area need more updates on technology in agriculture. This is not confined to the gadgets or equipment aspect, but the whole aspect of new technology water usage, variety development, fertilizer management, and better farming practices in general.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Pre- and post- tests are given to participants who attend educational events (beef schools, livestock symposium, calving schools, etc.). Surveys indicate that producers are learning new things and are willing to come back to future events. Impact data gathered from evaluations indicate that information is being used on the ranch and has generated profitable returns utilizing information gained at UI Extension Beef Educational events.

Key Items of Evaluation

A rancher in Challis indicated that he saved 5 calves this year during calving season utilizing information he received at calving school. If his calves were valued at $1100 each this fall, that is a savings of $5500 for just this one rancher. Imagine if every person that attended the calving school saved just one more calf. That would be a huge impact to the local economy in Custer County, which houses over 26,000 beef cows.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	4.6	0.0	10.0	0.0
Actual Paid	6.6	0.0	10.3	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**
206006	0	419136	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
206006	0	419136	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
482191	0	5470656	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 12,532 direct educational contacts through Extension and 391,631 indirect contacts. Team members published three articles in refereed journals, four UI-CALS Extension publications, thirty-seven scientific peer reviewed publications, and participated in projects funded by $1,337,241 in grants.
Multiple cereal schools were conducted throughout the state and allowed Extension faculty to interact with growers and provide technology transfer for new varieties. Topics included: irrigation management, improving water use efficiency, managing water curtailment, varietal performance, diseases, seeding rates, input cost savings, herbicide resistant weeds, proper chemical management, fertilizer management in barley, vole control in grain, 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 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 growers' and field workers' 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 tested samples for growers and provided quick response to this year's barley yellow dwarf virus (BYDV) outbreak and collected weeds to determine BYDV alternative weedy hosts.
Publications included newsletters, Extension publications, progress reports, scientific publications, and general media articles. Topics covered this year included integrated pest management, spring wheat, barley, and oats weed control, and adopting quinoa in southeastern Idaho.
Team members engaged in 27 unique research activities with 74 cooperators and collaborators. Research topics included cover crop rotation study, BYDV alternative weedy host research, weed control studies, hard winter wheat studies in southeastern Idaho, and weed management in the fallow period following grain harvest. Research also leveraged our 2014-17 USDA-NIFA-EIP award with the resources of the NIFA-AFRI Coordinated Agricultural Project Regional Approaches to Climate Change for Pacific Northwest Agriculture to increase adoption of IPM practices among commercial wheat producers and their advisors. The workgroup team added IPM decision tools for managing a complex of five cereal aphids, and a new application that allows growers to use field scouting data, management costs, and crop yield values from their own farms to estimate net profitability of aphid management with insecticides.
Team members interacted with other professionals at meetings to transfer knowledge, form alliances, and implement projects.

2. Brief description of the target audience

Cereal growers in Idaho - will be provided with technology to enhance cereal production and profitability and provide feedback and suggestions of needs and areas of concern for profitable cereal production. They will also provide resources for the project through direct use of facilities, and through checkoff contributions to commodity commissions. Audience includes farmers, ranchers, farm partners, landowners, and producers interested in organic production.
Agribusiness and support workers - will provide resources for technology development and delivery, be targets for information delivery, and provide feedback and suggestions for directions of the program. Audience includes agribusiness support personnel, pesticide producers, Extension educators, crop advisors, aerial applicators, state department - agriculture personnel and field-men, seed dealers, and grain mill workers.
Other target audiences include elected officials, nonprofits, academic agricultural researchers, other researchers, 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

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	12228	390691	304	940

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

Patent Applications Submitted

Year:	2016
Actual:	3

Patents listed
201600014 Wheat, common, UI Castle, University of Idaho
201600300 Wheat, common, UI Magic, University of Idaho
201600306 Wheat, common, UI Palouse, University of Idaho

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	14	37	51

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Idaho Cereal Schools.

Year	Actual
2016	151

Output #2

Output Measure

- Release and adoption of new cereal varieties.

Year	Actual
2016	2

Output #3

Output Measure

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

Year	Actual
2016	24

Output #4

Output Measure

- Develop pest control technology - project/experiments.

Year	Actual
2016	18

Output #5

Output Measure

- Research on management systems - projects/experiments.

Year	Actual
2016	36

Output #6

Output Measure

- Trained graduate students

Year	Actual
2016	9

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.
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	O: Expand knowledge on the biology of Hessian fly. I: Provide growers with management tools for pest control.

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
2016	2367

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers in Boundary County do not have easy access to farm tours and field days due to the isolated location of this production area.

What has been done
Both a cereal school and a variety trial field day were conducted in Boundary County.

Results
Thirteen producers attended the cereal school and another 15 attended the variety trial field day.

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	1237

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 about field scouting methods, economic injury levels, cultural and biological control, and judicious pesticide use.

What has been done
One hundred and ninety-two handouts were prepared and distributed during workshops that were delivered to commercial cereal producers and industry field staff in Idaho and Washington during FY2016.

Results
Commercial grain growers and agriculture professionals who advise grain growers about pest management learned about IPM practices for cereal insect pests by attending workshops delivered at conferences and recertification events during 2016. Workshop audiences more than doubled their IPM knowledge; whereas pre-tests averaged 26% correct answers, post-tests averaged 69% correct answers.

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
2016	449

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Producers in Boundary County need to know how different varieties respond in their growing area.

What has been done
Heading data was collected for variety trials and variety trials field days were organized in order to disseminate this information, which will also be published along with results from other variety trials around the state.

Results
Variety trial performance for Boundary County will be included with the statewide variety trials, which are published each year and will be posted online on the website. Growers who attended the field day could examine the performance of different varieties in the field and look at previous years' data in the handouts in order to make varietal choices.

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
2016	131

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Growers and Ag-industry professionals are interested in ways to improve nutrient cycling, reduce losses, and adopt more sustainable cereal production farming practices.

What has been done
Attendees of winter cereal schools were asked if they used knowledge gained from these events in the previous year on their farm.

Results
Seventy-six people reported using knowledge gained from university-sponsored events on their farms.

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

O: Expand knowledge on the biology of Hessian fly. I: Provide growers with management tools for pest control.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Due to the existence of virulence against the H3 resistant gene in northern Idaho and eastern Washington Hessian fly populations utilization of multiple genes for resistance is critical to enhance the durability of resistant wheat varieties. The availability of adapted, Hessian fly-resistant wheat varieties will provide Pacific Northwest wheat producers with an option to minimize the potentially increasing economic losses associated with this pest.

What has been done
Several Hessian fly resistant wheat varieties have been registered and new resistant wheat varieties have been released for use by growers. Information from this work has helped growers manage pest populations to optimize productivity under no-till and conventional systems.

Results
The proportion of the spring wheat acreage planted to Hessian fly resistant varieties in northern Idaho and eastern Washington has increased substantially over the last decade. Adoption of fly resistant varieties results in a reduction of the economic losses associated with damage by this pest and reduces the needs for pesticide use, thus diminishing the environmental impacts associated with pesticide use.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

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 (Water challenges)

Brief Explanation

Producers are very concerned about the impact of water restrictions that the Idaho Department of Water is implementing. They want more education regarding water management and water regulations. The price of grain has gone down through the floor, and most producers are nervous about their future. The costs of production have not really gone down, yet the price of grain is low. Northern Idaho's climate was abnormal this year and resulted in a region-wide grain quality crisis. Since these conditions were so atypical extension educators were invited to provide unplanned educational programming to help growers and Ag-industry professionals understand how the situation occurred and how to address/prevent similar outcomes in the future.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

A Participant Extension Teaching Evaluation was distributed at the Bonners Ferry Cereal School held on Jan. 28, 2016. Ten evaluations were received out of 13 producers who attended. For the following statement, "Information shared met audience needs," 90% of the audience either strongly agreed or agreed, while one respondent was neutral. For the following statements, "The instructor is well informed and kept audience interested," and, "The instructor encouraged questions and interaction with participants," all of the participants either strongly agreed or agreed. For ideas they planned to put into practice, 3 respondents planned to use the crop budgeting tools, one planned to test pH in his fields and one planned to try canola production. Suggestions for improvement included the following: "Make an online portal because Excel scares people," and, "More budgets!" Additional comments included a thank you for the slides depicting herbicide damage.

Key Items of Evaluation

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	7.7	0.0	1.3	0.0
Actual Paid	7.2	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**
150572	0	62002	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
150572	0	62002	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
511309	0	476458	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Horticulture team members reported 27,092 direct educational contacts and 4,341,658 indirect contacts made through Extension programs. Team members published 5 University of Idaho Extension publications and participated in projects supported by $2,101 in grant funds.
Junior Master Gardener classes were delivered serving 2 Idaho counties in 2016. Ada, Canyon, and Washington counties delivered shorter, more accessible plant clinics and reached hundreds of 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. Eleven counties graduated a class of Master Gardeners in 2016.
An Idaho Victory Garden course was delivered in Blaine County. This course has now been taught nine consecutive years reaching 108 people in 2016. The estimated potential value of food produced in the garden series graduates' collective home gardens every year exceeds $175,000.
Outreach for commercial producers included collaborations with the Idaho Nursery and Landscape Association to provide instruction at the Green Collar College, 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, virmiculture and composting, tree care, and more. Youth-related activities include 4H 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 publics, 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 2016 were the continuation and planting of a community garden and a record number of participants. Gardening plot quality and the community garden improved along with improved management techniques that were observed for watering, weeding, and harvesting.
In one county alone, there were 15 active volunteers, 6 continuing Master Gardeners, and 8 advanced Master Gardeners who then contributed over 300 hours of teaching or service in the community through projects and plant clinics. Over 550 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 150 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. Community garden and food projects led by Master Gardener Volunteers produced thousands of pounds of food for low income residents in 2016.
Media outreach is conducted through 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. Specialized information for consumers is published by UI Extension faculty including illustrated guides for entomology, managing insects, and pesticide training.

2. Brief description of the target audience

Master Gardener Education Project: The target audience for this project includes Idaho citizens who are 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 to 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 includes 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 2016, 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, church groups, and other interested organizations.
Green Industry Education Project: The audience consists 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, pesticide applicators, and fruit producers. The team serves this audience via professional development training opportunities and technical assistance.
Underserved Audiences
Current underserved groups include low-income, Hispanic, Native American, and immigrant populations. Driggs Community Garden (DCG) is for low-income residents and individuals who do not have the space to garden at home.
The target audiences for the Fort Hall Extension Horticultural program 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 who donated funding, labor and time to develop several Fort Hall Horticultural Projects and the Fort Hall Community Garden.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	24310	4229394	2782	112264

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

Patent Applications Submitted

Year: 2016

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	1	4	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Advanced MG Workshops/Tours: faculty contribution to Advanced MG Training (Does not include beginning MGs). O: Number of faculty presentations at Advanced MG training events.

Year	Actual
2016	114

Output #2

Output Measure

- Beginning MG Courses Organized/Supervised: Number of MG courses (not classes within a course) organized/supervised by educators. O: Number of whole courses delivered during the past year.

Year	Actual
2016	20

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. I: The number of products developed/published during the past year.

Year	Actual
2016	161

Output #4

Output Measure

- Consumer Education-Websites: Statewide and county websites (faculty-authored) containing current, relevant consumer-based horticultural information. O: The number of actual websites developed or actively improved during the year.

Year	Actual
2016	11

Output #5

Output Measure

- Consumer Education-Workshops, Seminars, Demonstrations, Field Days: Faculty contributions to consumer-based education events (exclude MG classes, reported elsewhere). I: Number of specific faculty presentations at Extension consumer education events.

Year	Actual
2016	164

Output #6

Output Measure

- Green Industry Education-Workshops, Seminars, Clinics: Faculty presentations associated with green industry educational events. O: Number green industry education events and presentations.

Year	Actual
2016	22

Output #7

Output Measure

- Master Gardener-Volunteer Hours: Total number of hours contributed by all volunteers over the past year.

Year	Actual
2016	15094

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. O: The number of current, relevant, active sites.

Year	Actual
2016	3

Output #9

Output Measure

- Direct Contacts with Stakeholders Made by Certified MGs: . Number of direct contacts during the past year by volunteers.

Year	Actual
2016	21959

Output #10

Output Measure

- Faculty presentations to Beginning MG classes: Number of presentations.

Year	Actual
2016	181

Output #11

Output Measure

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

Year	Actual
2016	127

Output #12

Output Measure

- Master Gardener-Volunteer MG Contributions to Workshops, Seminars, and Demonstrations: Number of volunteers who organized or presented at educational events.

Year	Actual
2016	300

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.

Year	Actual
2016	7

Output #14

Output Measure

- Trained graduate students.

Year	Actual
2016	1

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: The average number of key topic areas (out of 25 in the Master Gardener certification exam) in which learners? 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	Green Industry Education - Information Availability. The Green Industry workforce has access to useful research-based pest control and production information. Indicator: Combined numbers of personal contacts and hits on the green industry website.
4	A statewide Master Gardener program that operates according to state policies, ensuring cohesion, program branding and quality that delivers quality education and service to the public. Indicator: The number of Master Gardener programs statewide that operate according to written policy.
5	Green Industry Education-Certification Training. The desired outcome is green industry personnel with sufficient knowledge to pass public certification exams. Indicator: The number of participants passing the exams after Extension training is an indicator of program success.
6	Master Gardener-New Certification: The desired outcome is a pool of newly trained Master Gardener volunteers to maintain efforts in home horticulture outreach, and to donate their time and expertise to their community. Indicator: Number of new Master Gardeners certified during the past year.
7	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: Number of active, certified Master Gardeners and Advanced Master Gardeners currently serving in counties.
8	O: Habitat restoration and managed landscapes utilizing native plant species. I: Developing propagation methods for native plant species.
9	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.
10	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.
11	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.

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: The average number of key topic areas (out of 25 in the Master Gardener certification exam) in which learners? knowledge increased.

Not Reporting on this Outcome Measure

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
2016	16124

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Traditional methods of disseminating information to audiences are not as effective due to demographic shifts and ways in which our audience accesses and consumes information.

What has been done
Facebook, Twitter, a text-based pest alert network, and a Blogger website were created to help disseminate research-based information in a proactive and effective way to reach a younger target audience.

Results
Results show that there have been steady and significant increases in people accessing

information via these websites. The PNW Pest Alert Network has 393 landscape subscribers after one season. Facebook has 550 likes and thousands of shares and views accessing information in multiple formats. Users who have responded to a survey have indicated that this information helps them garden more effectively in Idaho, reduce pesticide use, as well as properly irrigate and manage pests in an environmentally friendly manner which has led to economic savings.

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

Green Industry Education - Information Availability. The Green Industry workforce has access to useful research-based pest control and production information. Indicator: Combined numbers of personal contacts and hits on the green industry website.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

A statewide Master Gardener program that operates according to state policies, ensuring cohesion, program branding and quality that delivers quality education and service to the public. Indicator: The number of Master Gardener programs statewide that operate according to written policy.

Not Reporting on this Outcome Measure

Outcome #5

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 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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Green Industry Personnel need access to pesticide certification credits.

What has been done
Three classes were offered which were accredited through the ISDA to count as continuing education hours for those seeking to maintain their pesticide certification.

Results
CEUs were obtained for 3 of the 14 MG classes.

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 #6

1. Outcome Measures

Master Gardener-New Certification: The desired outcome is a pool of newly trained Master Gardener volunteers to maintain efforts in home horticulture outreach, and to donate their time and expertise to their community. Indicator: Number of new Master Gardeners certified during the past year.

Not Reporting on this Outcome Measure

Outcome #7

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: Number of active, certified Master Gardeners and Advanced Master Gardeners currently serving in counties.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	362

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Master Gardeners take pressure off county Extension offices by answering horticulture questions and making visits as UI Extension volunteers. Also, establishing a good pool of volunteers is important for running a cohesive program from one year to the next. The returning master gardeners are very valuable for helping in plant clinics as they will have likely seen many of the same questions the year before. Also, they are helpful in training the new volunteers.

What has been done
Team members visited multiple association meetings to get volunteers involved and set up meetings with county extension offices to help connect Master Gardeners to Extension staff and faculty. Community presentations for more continuing educational opportunities were increased.

Results
A younger demographic were encouraged to participate in the program. Those that completed and renewed their certification were more energetic and spritely. This enthusiasm will be built upon and should create a great program of University of Idaho dedicated volunteers.

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 #8

1. Outcome Measures

O: Habitat restoration and managed landscapes utilizing native plant species. I: Developing propagation methods for native plant species.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The demand for native plant species in managed landscapes throughout the state and region has increased although there is limited availablity from wholesale production nurseries and lack of knowledge about native plant use. Production nurseries often cite a lack of information on propagation and cultural practices needed for their production as reasons for growing native plant species.

What has been done
We improved the shoot multiplication of a new dwarf serviceberry ecotype and found a way to root the shoots at very high percentages. For a selected ecotype of fire chalice, we developed a complete micropropagation protocol - from shoot establishment and multiplication to rooting and acclimatization - to increase the number of plants readily available to release to the nursery industry.

Results
Two improved selections of native landscape plants can be propagated commercially and released to the public within the next two years.

4. Associated Knowledge Areas

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

205 Plant Management Systems

Outcome #9

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
2016	70

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Questions about insect identification and management are among the most common problems that UI 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
The team quantitatively measured short-term Logic Model outcomes (i.e., gains in audience knowledge) via pre:post testing of beginning Master Gardeners at workshops. Wireless audience response cards were used as an alternative to written tests.

Results
Short-term outcomes during 2016 were highly positive. Pre:post tests (n=224 people participating at 9 venues) conducted by via wireless audience response cards showed that average gain-in-knowledge (computed as the difference between pre and post-workshop audience test scores) was 38% (i.e., from 29% correct answers pre-test to 67% correct answers post-test). Audience responses to the post-workshop evaluation item, "List one idea you plan to put into practice," centered on identification of pests and beneficials as well as use of biorational insecticides; representative verbatim written audience replies to that question included these: "I will stop killing the beneficial insects that I have [mistakenly] killed for years,? and, ?Read pesticides labels better to match problem to need of correct chemicals."

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 #10

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
2016	9

3c. Qualitative Outcome or Impact Statement

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

What has been done
The counties served with standardized programs include Ada, Fremont, Madison, Teton, Bingham, Bannock, Bonneville, Bonner, and Boundary.

Results
Master gardeners receive superior training and give superior volunteer service resulting in more substantial impacts which align with the outcomes on the logic model reporting for the program.

4. Associated Knowledge Areas

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

Outcome #11

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	175

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As the demand for Master Gardener's expertise and service increases, having well trained volunteers can add significantly to the outreach capacity of each office. Also, retention is a big part of the Master Gardener Program. Without Master Gardeners helping each other many do not complete the program.

What has been done
Master Gardener classes were taught including youth gardening and community garden leadership. Frequent opportunities for trainees were offered to get them involved. Association members were invited to classes to invite new members to their monthly meetings.

Results
One-hundred and fifty-six program participants completed their Master Gardener certification in 2016, completing the required commitment for community service. In another case, of a total of 9 participants in a different 2016 program.

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The changing demographics around Fremont County are having a distinct impact on how many and what groups of society are participating in the Master Gardener Program. We have a larger amount of millenials, and a fewer number of retired elderly people living in this area. Millenials are more inclined to find information on the web, and watch a YouTube video than they are to attend 15 weeks of classes in a formal classroom setting. This has impacted our class size adversely. During times when the recession is not in full swing and people have a better economic outlook, they are inclined to garden less, and just buy more food from the grocery store.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The Southern Idaho Master Gardener program has shown that participants are adopting gardening practices in their own gardens, are able to teach gardening principles to other gardeners, have improved skills in working with others, are more familiar about their responsibilities to the University, know they can find meaningful volunteer opportunities, and believe they are valuable members of the program. Plant diagnostic clinics in 6 counties answered 2,105 requests and applied 622 hours to University of Idaho office services.

Key Items of Evaluation

A great indication that the Southern Idaho Master Gardener program is developing into a sustainable program is the many dedicated Master Gardeners and their highly visible projects within the community. Many of which are singularly coordinated and managed by

the master gardeners themselves. One specific group of gardeners took an existing gardening program and adapted it to their high elevation short season community. They organized, marketed, and found speakers for ten community classes. The classes were full and they have a waiting list for next year. Nothing is more impactful than a program that can educate a life to educate the lives of others.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	4.5	0.0	1.5	0.0

Actual Paid	3.5	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**
169884	0	183567	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
169884	0	183567	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
415632	0	849683	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 5,431 direct educational contacts through Extension, 16,779 indirect contacts, and participated in projects funded by $950 in grants.
Extension faculty delivered a variety of educational programs for local leaders and entrepreneurs in 2016. Courses including Wordpress Workshop for Small Businesses, The Dollar Game, and Ready, Set, Grow Your Business brought a range of experts into communities to improve understanding and decision-making skills of participants. Workshops in 2016 focused on civic engagement, marketing, financial management, computer basics, team building, living wage, and business websites.
Other activities covered topics such as bike and pedestrian paths, youth entrepreneurship, accessing higher education, local food systems, food security, and connecting education to local economies so communities can be more competitive. One team member has been working on human capital development with more Extension support for higher education access, funding, and attainment using a workshop called Careers, College, and Coffee reaching 161 students.
Extension faculty served on local economic development boards and mentored local business start-ups. Extension participated in regional economic development partnerships including the Clearwater Economic Development Association. Statewide partnerships include Wealth Work Northwest (supported by an AFRI grant), Area Sector Analysis Process (also supported by AFRI), 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 work with the Big Creek, Yellow Pine, Salmon River Forest Collaborative and the America's Best Communities Collaborative offering leadership development, strategic planning, and facilitation service to their multiple stakeholders. The Community Coaching for Grass Roots Action program helps communities focus on action, rather than protracted educational delivery. In 2016, one member worked with the Lapwai Community Action Team assisting with developing an AmeriCorp volunteer team for the community garden and a summer intern to support team efforts. Also, the Aberdeen Community Action Network was aided in the planning of two community projects. Extension conducted a Ripple Effects Mapping exercise mapping the organization/project impacts at a food summit. The Extension faculty have also been involved in a land acquisition study for the Nez Perce Tribe.

2. Brief description of the target audience

Target audiences will participate in educational training opportunities, as well as designing programs, serving on steering committees, teaching curriculum, recruiting program participants, and evaluating and redesigning programs. Target audiences include:

- Business owners
- Economic development professionals
- Government agency personnel
- Community non-profit organizations
- Entrepreneurs - current and future
- Elected officials & decision makers (state & local)
- New leaders and individuals currently serving in leadership roles
- Local stakeholders
- Food co-op development; producers forming a partnership to strengthen local food system
- Rural communities
- Community and county educators
- Nonprofits
- College students and youth

In 2016, Montana and Wyoming community assessment delivery organizations were target audiences for a project on community assessment best practices and evaluation.

3. How was eXtension used?

Use of eXtension is unknown for this program.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	5079	11749	352	5030

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	26	26

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Steering Committees/Teams formed.

Year	Actual
2016	5

Output #2

Output Measure

- Materials/Curriculum developed.

Year	Actual
2016	0

Output #3

Output Measure

- Presentations/Workshops delivered

Year	Actual
2016	35

Output #4

Output Measure

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

Year	Actual
2016	16

Output #5

Output Measure

- Conference posters/presentations

Year	Actual
2016	8

Output #6

Output Measure

- Boards & Communities - Facilitated/Mentored/Coached.

Year	Actual
2016	26

Output #7

Output Measure

- Communities served.

Year	Actual
2016	26

Output #8

Output Measure

- Counties served.

Year	Actual
2016	32

Output #9

Output Measure

- Web-based educational materials developed

Year	Actual
2016	1

Output #10

Output Measure

- Trained graduate students.

Year	Actual
2016	1

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. I: Number of participants indicated adoption of practices. (customer service follow-up checklist)
3	O: Leadership: Incumbent and emerging leaders learn skills for 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.
11	O: Inventory rural community assets and capital. I: Define measuring techniques.

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
2016	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Entrepreneurs have little time to engage in professional development and are relatively isolated from other business owners in their communities.

What has been done
Ready Set Grow your Business is a series of seminars with presentations from small business development experts, introductions to local economic development professionals, and discussions with local entrepreneurs about their experiences.

Results
Sixty percent reported a 50% or higher increase in their knowledge of the business topic presented. 89% agreed or strongly agreed they acquired practical skills and knowledge to manage their business more effectively and efficiently.

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. I: 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 leadership positions. I: Number of participants with increased skills (pre-post test)

   Not Reporting on this Outcome Measure

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
2016	16

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
Community action teams started as part of the Community Coaching for Grassroots Action provide leadership opportunities. In Aberdeen, two new community leaders joined the action team there. In Athol, an activity conducted as part of the Idaho Community Review process, led to

establishment of two new committees.

Results
Aberdeen successfully implemented a Main Street improvement project to install flower boxes. In Athol, one committee is focused on organizing new annual events and the other on expanding community involvement.

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

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Human Capital development is important for the future economic development of the state of Idaho.

What has been done
Enroll Idaho was offered in McCall and a local outreach to Cascade Seniors was conducted about higher education opportunities.

Results
Twenty-five students had direct contact with UI Extension and Administration professionals from campus.

4. Associated Knowledge Areas

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

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Regional collaboration is taking place through the America's Best Communities Contest. One of the initiatives UI Extension, Valley County is currently working on in partnership with this collaboration is the Area Sector Development Process.

What has been done
A steering committee has been formed and is currently working with the Western Rural

Development Center to conduct the Area Sector Development Process.

Results
A Quality Life Survey and a Community Asset Inventory have been conducted to identify the industries that are most compatible and desirable for the west central mountains (two counties, four towns).

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	31

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In the Teton Valley of Idaho many organizations and individuals are working to help at-risk community members, but duplicative efforts and gaps still exist, as well as lack of collaboration between individuals and organizations delivering services in the community. There is also a lack of cohesion and leadership among groups in addressing food insecurity and hunger, leading to inefficient efforts.

What has been done
Organizations and individuals will meet 4 times per year to develop working relationships, identify gaps, and deliver programs to at-risk/in-need members of the community. Meeting participants and community leaders will work together to develop shared goals and action items that address food insecurity and hunger, such as food rescue programs saving measurable waste from the landfill and feeding in-need community members.

Results
Nonprofit representatives and counselors began meeting to increase collaboration and identify gaps in delivering resources to underserved audiences and at-need community members. A subcommittee of service individuals representing 4 organizations formed to work more specifically on food insecurity, hunger, and food waste/nutrient cycling. Projects that address food insecurity and food waste are being developed. Due to forming new relationships and increased collaboration to reduce food waste and insecurity, food rescue efforts have begun between the local grocery store and emergency food service organizations such as the food bank, senior center, and women's shelter. Within the first two weeks of implementing the program, 431 pounds of fresh produce that otherwise would have been sent to the landfill has been recovered and distributed to service organizations, resulting in less food waste and increased access to fresh produce for at-need Teton Valley residents.

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Project 1) Community Design and Infrastructure are important to rural communities. Project 2) The team applied for a technical assistance with a local committee called the Cascade Mobility Team. A bike and pedestrian plan was developed with the CMT in 2015 and in 2016, local stakeholders worked with UI Extension, Valley County to help take action steps towards the goals identified in the plan.

What has been done
Project 1) A partnership with Gary Austin and the Art and Architecture students visited Valley County to design and develop two greenhouse proposals. One proposal was developed for the McCall Outdoor Science School and the other was for a potential location in Cascade TBD. Project 2) A bike and pedestrian transportation study was conducted using a group of local stakeholder volunteers.

Results
Project 1) The MOSS program has a schematic design drawing created for a greenhouse for the graduate program and STEM programming of this center. Project 2) The City of Cascade now has baseline data on mobility usage and challenge areas throughout town. These data were also used to apply for a Safe Routes to School corridor with the Idaho Transportation Department and funding was awarded to implement street improvements.

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.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Entrepreneurs are an important part of rural communities. Growing the local food economy is one strategy that is currently being employed and the Beginning Small Farmer and Rancher program served this initiative.

What has been done
The Beginning Farmer and Rancher program offered a small business development opportunity to local Valley County residents through a 3-series training course offered in the spring.

Results
Two participants registered a business license with the State of Idaho.

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
608	Community Resource Planning and Development

Outcome #11

1. Outcome Measures

O: Inventory rural community assets and capital. I: Define measuring techniques.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Community capitals are linked to rural community's ability to foster asset or place-entrepreneurship, innovation and development of value chains.

What has been done
Inventorying community capitals and assets continued with refinement of categories of assets/capitals identifiable via survey data collected as part of the Idaho Community Review process. Data from additional surveys was added as well.

Results
This work will culminate in rural community profiles. Ripple Effects Mapping was used to identify impact of local food systems operations. Based upon this preliminary work, NIFA-AFRI funding has been obtained to continue rural community capital inventories, community leadership development and evaluation of community development programs that conduct assessments of rural communities. Analysis of Idaho Community Review survey and reports will continue, and data resulting from assessments in Montana and Wyoming will increase the size of the data set and provide a robust foundation for developing community profiles framed in terms of indicators of potential community economic development success.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Excitement about Regional Collaborative Contest - America's Best Communities)

Brief Explanation

Many factors outside the control of communities impact them. Large-scale economic changes that result in replacing high-wage skilled jobs with low-wage service jobs, increases poverty and related social problems. Appropriation changes affect things like the quality of K-12 education. In small towns, this has a larger impact when extra-curricular activities are dropped because there are fewer age-appropriate activities available in rural areas. Public policies impact many aspects of community life, including local business operations, public safety, and public service availability and quality. Demographic changes

can impact community cohesiveness. Suburban sprawl in rural areas, and "amenity growth" can create divisions between long-term residents and urban transplants. In southern Idaho, the increasing Latino population can create cultural divides that require leadership and trust to build bridges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

As part of an effort to improve the Community Review process, documentation of impacts from past reviews is underway. "Community outcomes" is the dependent variable and independent variables include community size, remoteness, economic factors, leadership factors, and other community dynamics.

Key Items of Evaluation

Work with the Idaho Community Review led to conversations with the Kettering Foundation about the review structure and how to augment it so that community members participating in focus groups, listening sessions, and community meetings, (all part of a three-day visit to communities by 12 - 15 professionals from around the state) might incorporate more opportunities for democratic engagement in shaping review outcomes. A change was proposed to the structure of one of the community meetings so that participants could develop ideas for their community by talking with one another, instead of only with the visiting professionals. It involved conducting listening sessions prior to the three-day visit so the ideas heard in listening sessions could be reviewed and used to generate vision statements in the form of future newspaper headlines. The process steps are listed below:

- Summarize listening sessions and share the summary with visiting professionals prior to the community visit
- On the first night of the review, residents attending a community-wide meeting also hear a brief presentation on the results of the listening sessions
- Participants self-select into one of three groups representing the focus areas of the community review (always economic development and two other focus areas selected by the community organizing committee)
- With visiting team leaders facilitating, they discuss the listening session results pertinent to their focus area and brainstorm additional ideas
- Then each larger group breaks into small groups of 2 - 4. These groups generate newspaper headlines they would like to see in the future
- Headlines are written on flip chart paper and reported to the whole group
- Each person receives three dots and can vote for one headline in each focus area
- The top three indicate the priorities of the community and the topics visiting team members should focus on during the rest of the review.

One veteran visiting team member stated he thought the process produced better information than the old format. Other visiting team members and community residents commented that it was an engaging, positive and informative exercise. The process has now been officially adopted as the format for the community meeting on the first night of the review.
That one change was a catalyst for other veteran visiting team members to suggest changing the format of the second community meeting. The purpose of this meeting has

been to provide preliminary feedback to the community. It was structured as an hour of presentations followed by a Q & A session for the community. Instead, the visiting team identified three community priorities that would be relatively quick and easy to plan and implement. After very short presentations by each focus area team leader, community members self-select into one of the three groups and visiting team leaders facilitate development of a tentative work plan and identify leaders who will work together to implement the plan. In the most recent review in October, 2016, this format resulted in the formation of two action teams that will focus on fostering community involvement and developing a new community event that will be community building and bring visitors to town. This was the first time that action teams have formed during the community visit portion of the community review.

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: 2016	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**
181464	0	104584	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
181464	0	104584	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
242047	0	905508	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 4,144 direct educational contacts through Extension and 61,650 indirect contacts. Team members published three articles in refereed journals, two DAIReXNET publications, and participated in projects funded by $79,004 in grants.

1. 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, forages for dry cows, herd health, genomics, milk quality, identifying lameness and problem cows, mastitis control, heifer and calf management, dairy margin protection, and cow comfort. 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. This generated a follow-up meeting with producers and a processing company to bring processing capacity for goat milk in Idaho.

The Winter Dairy Forum focused on writing standard operating procedures for the farm program and new precision dairy technologies. The team also continued to run collaborative multi-institutional Dairy Genomics Workshops.

2. Dairy Workforce Development

The Dairy Topic Team members have continuously developed, improved, and delivered training for Dairy Workforce Development. Undercover video surveillance has recently increased public awareness of animal care and welfare issues. The team responded with a dairy employee-focused program which was implemented to educate in the following areas through dairy Beef Quality Assurance (BQA) trainings:

- Animal welfare and stockmanship
- Lame cow identification
- Body condition and locomotion scoring
- Management of non-ambulatory cows

The increase in employment of Hispanic workers in Idaho's dairy industry prompted University of Idaho Dairy Extension 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. Two articles appeared in DAIReXNET published in Spanish on genomics.

Other examples of activities include ABS GLOBAL RMS workshops, Large Dairy Herd Management Conference, and a Pacific Northwest Animal Nutrition Conference.

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, and members of allied industry including ABS. Audience venues include farm visits, dairy meetings, and DAIReXNET (for producers, allied industry, and Extension).

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

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4082	61400	62	250

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	3	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Winter Dairy Forums.

Year	Actual
2016	1

Output #2

Output Measure

- Milker schools.

Year	Actual
2016	7

Output #3

Output Measure

- Calf Schools.

Year	Actual
2016	1

Output #4

Output Measure

- Artificial Insemination Schools.

Year	Actual
2016	1

Output #5

Output Measure

- Feeder Schools.

Year	Actual
2016	1

Output #6

Output Measure

- Popular Press articles.

Year	Actual
2016	6

Output #7

Output Measure

- Abstracts and Proceedings.

Year	Actual
2016	11

Output #8

Output Measure

- Trained graduate students

Year	Actual
2016	4

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 and forums.
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).

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	410

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 reported that they had gained new knowledge following attendance at the workshops.

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).

Not Reporting on this Outcome Measure

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
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
AI certification for dairy employees and dairymen.

What has been done

One AI school was taught in Treasure Valley.

Results
Five newly trained dairy employees in AI.

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

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Economy
- Appropriations changes
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

There has been an increase in the number of dairy goat producers and extension educators were not able to prioritize technical advice and technology transfer this year.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

A study was conducted to determine whether on-farm dairy beef quality assurance (BQA) training affected dairy worker knowledge of BQA and welfare-related practices. Dairy personnel who participated in the BQA training were administered an exam before and after the training to gauge the amount of knowledge gained. The average exam score was 21.0 points higher after the training, increasing from 54.4 to 75.4. Improvement in dairy worker knowledge suggests that BQA training programs have the potential to positively influence the dairy industry through the education of dairy owners and workers on BQA and welfare-related practices.

This pilot study evaluated the effect of on-farm Beef Quality Assurance (BQA) training on welfare- and BQA-related traits in dairy cows and determined practices in place on dairy farms that negatively affected dairy cow welfare and BQA. Twelve dairies participated, with 4 in each category: small (1 to 199 cows); medium (200 to 1,499 cows); and large (1,500 cows or more). Two dairies in each category received BQA training. During 2 visits (before and after training) a survey was administered to identify management practices in place that concern dairy cow welfare and BQA, and an attempt was made to evaluate every lactating cow for BCS and locomotion score. The number of measures in place to avoid residues in the food supply was greater for milk than for meat (3.4 vs. 1.9; $P < 0.01$).

Participants reported that injections were administered in each of the following locations: 63.9% neck, 17.3% hind leg, 15.3% upper hip/rump, 3.1% shoulder, and 0.4% tailhead. Because the neck is the only BQA approved location for administering intramuscular or subcutaneous injections, educational efforts are needed to improve injection practices on dairy operations. The percentage of lame and severely lame cows per farm was 14.7 and 3.9% during the pre-training visit and 14.0 and 4.2% during the post-training visit, respectively. One dairy producer hired a full-time employee to trim hooves and manage lameness on their operation after receiving BQA training. Implementation of an on-farm dairy BQA training has the potential to positively affect dairy cow welfare and BQA practices.

Key Items of Evaluation

We have teamed with an international bovine genetics company to provide training to RMS employees. A text was received from their manager stating, "My dear friends, I would like to say a big thank you for another great session of presentations at the University of Idaho, once again the trainees said nothing but good things about you. I personally agree and you have been a great part of the RMS training program success." Note that the local manager of the RMS program is one of our previous students that has attended the middle herd manager program that we provide to Spanish speaking dairy managers and professionals.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	5.9	0.0	0.0	0.0
Actual Paid	3.4	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**
82232	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
82232	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
225157	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Family Finance Team reported teaching at 197 educational events in 2016, reaching a total of 5,283 learners (3,715 adults; 1,568 youth) and participated in projects supported by $7,930 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 center on financial management skills and include budgeting, credit management, recordkeeping, women's financial management, health care insurance, Medicare, late-in-life financial issues, buying a home, planning retirement, decluttering and downsizing, and protecting against identity theft. One team member coordinated the Poverty Simulation at the 4-H Teen Conference, and another presented Idaho-specific program materials related to the Smart Choice Health Insurance program, including training of county educators and a workshop delivered at a regional conference via Zoom.

2. Brief description of the target audience

This team's target audience is quite varied and includes 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, local groups, clubs, associations, teachers, parents, youth group leaders, 4-H students, after-school youth, school age youth, Extension programs, general public, Hispanics, college students, inmates, elderly, mentally/physically disabled, homeless and transitional shelters, substance recovery participants, and family business owners.
Basic Financial Management: Young adults, people who are new to financial management (i.e., widows, divorcees, immigrants), and individuals who need to improve their financial management practices. Train-the-trainer activities target professionals who work with people with low-income and/or financial challenges.
Financial Security in Later Life: Adults of all ages planning for their own financial future and also adults who are caretakers of elderly relatives and friends will use publications, websites, and/or attend classes. Train-the-trainer activities target professionals who serve elderly clients.
Youth Financial Literacy: Teachers, librarians, youth group leaders, parents, and youth are all served.

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

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3903	74245	1568	3542

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	1	0	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Newsletter articles published; print or electronic.

Year	Actual
2016	42

Output #2

Output Measure

- Popular Press articles.

Year	Actual
2016	10

Output #3

Output Measure

- Professional or paraprofessional trainings.

Year	Actual
2016	26

Output #4

Output Measure

- Classes, seminars, and workshops.

Year	Actual
2016	201

Output #5

Output Measure

- Websites developed or updated.

Year	Actual

2016	3

Output #6

Output Measure

- Lesson/curriculums developed and published.

Year	Actual
2016	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 Family Finance information is accessible to new audiences through Extension websites, social media, and use of technology.I: Number of website sessions and pages visited; number of social media followers, number of participants in Adobe Connect, chat, or other trainings offered via technology.
5	Participants intend to adopt recommended financial practices. Indicator: Participant responses on end-of-program and follow-up evaluations.
6	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
2016	706

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Latah County has 19.9% of their population living poverty, Idaho has 15.1%, and the U.S., 13.5%. Nearly one-fifth of families in Latah County are living on a salary that cannot buy essentials. Many of these families may be without a secure home. They may be living with friends or relatives or they may not have housing at all. Poverty is a national crisis and we have the ability to ease the pressure of poverty through knowledge and action.

What has been done
As future leaders of our country, 4-H members were introduced to the Poverty Simulation. In this simulation, teens were asked to role-play families living in poverty for a mock one-month period. Their decisions had to be made according to the resources they had and the tools available. In addition, briefing and de-briefing sessions helped them understand what they can do now and in the future to protect themselves from poverty and to help others who struggle in poverty situations.

Results
Poverty is often misunderstood. How people end up in poverty; how they stay in poverty is often a mystery. Teens learned valuable personal finance lessons from how close many of us are to these circumstances to how people are treated when they are struggling with poverty. After participating in the simulation, teens were asked if they believed welfare, food stamps and other social programs provided enough money to survive. 42% said yes: 56% said no or didn't know. 51% of the teens believed that people are responsible for their circumstances and another 63% thought if people just "applied" themselves, their situation would be different. 78% stated that there are additional emotional costs associated with being poor in America. At the debriefing, a colleague was introduced who had been homeless and put a face on poverty. Students were moved by how difficult this experience was. They shared ideas on what they might do to change financial directions for them and for others.

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
2016	1034

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Few Extension programs have focused directly on credit score and credit card education. NPR reported that a credit score can be just as important as an SAT score for youth who are transitioning to adulthood (Horsley, 2006). This is because 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 and 225 being Hispanic. Teens Credit Card was presented three times to a total of 94 participants and 14 being Hispanic.

Results
Credit Score Millionaire class evaluation included 70 adult responses. Following are the questions asked before and after the class with respondent percentages. ?I know how to build a good credit score? - 48% before and 98% after. ?I am confident in my ability to increase my credit score? ? 43% before and 94% after. ?I plan to regularly obtain my free credit report at annualcreditreport.com to ensure an accurate and improving credit record? ? 18% before and 93% after. ?I plan to take action to improve my credit score?- 42% before and 96% after. ?I plan to teach others how to build a good credit score? ? 31% before and 68% after.

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
2016	92

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Estate planning is a very difficult thing family members have to do, but it is one of the most loving things one can do for family. Attorneys tell people that one of the biggest challenges they have when a loved one passes away is the personal property. The Stuff. Who gets what, what is what, and where it all will go when the loved one is gone.

What has been done
A workshop in Coeur d'Alene was taught that was expanded to other counties called "Simplify Your Life." The workshop was three-hours long and contained "Decluttering Your Life and Reducing Your Stress," "Organizing Your Financial Paperwork," and "Who Gets Grandma's Yellow Pie Plate?" These three classes worked very well together and provided a full view of estate planning, how to clean up, and preparing for life events.

Results
The amount of information presented in this short amount of time can be overwhelming. Booklets and guides were given to each of the participants to help them as they begin to formulate plans. As an evaluation tool, each one was asked to give one thing that they were planning to do by the end of the week in reference to the workshop. Some of the answers were: "set up a family meeting," "get 5 boxes and start the process," "think about how I want my decluttered life to look," "start on week 1 of the 52-week plan," "organization - have a special place for all of my needed tools," "I am starting with cups with broken handles," and "the idea that stuff is just stuff - I need to think about what it means." Every participant vowed to read the materials, share them with

"friends, family, neighbors, kids, parents, and other organizations" they work with and not allow the booklets to become clutter. This workshop has been requested multiple times and has always been well-attended.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #4

1. Outcome Measures

O: Extension Family Finance information is accessible to new audiences through Extension websites, social media, and use of technology.I: Number of website sessions and pages visited; number of social media followers, number of participants in Adobe Connect, chat, or other trainings offered via technology.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	4906

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need for financial education and the number of the educators that have expertise in the field is out of balance. With budget cuts, educators are having to find ways to reach their audiences without traveling to them personally. Time away from the office, travel expenses, and prep time is wasting a scarce resource and missing opportunities to reach a greater number of stakeholders.

What has been done
?Zoom? was utilized to present one regional conference and two state workshops and to counsel multiple individual clients. With the help of a colleague on-site, AV equipment and an Internet Zoom account were accessed. The presenter was able to "be in the room" without the time traveled to and from the location or travel money spent for two nights in a hotel for each meeting. In addition, the presenter could educate stakeholders and would have missed the opportunity had this option not been available.

Results
Virtual meetings are an up-and-coming way to reach out to audiences. They make sense. With these presentations, evaluations confirmed that 74% of the audience liked the alternative format.

Every evaluation showed knowledge was "strongly" communicated and accepted. Twenty-six percent simply would have liked to "see" the presenter in person and wanted handouts ahead of time. With every opportunity, the presenter learned ways to make this a more productive, "in-person" experience and found solutions to the challenges that came up. With client counseling, the presenter worked specifically with individuals where they were sent "assignments" ahead of the meeting, shared information on a personal DropBox, and shared the screen when going through counseling material. Every person that was counseled individually appreciated the ability to meet with this way (it allowed for varied schedules) and has allowed the presenter to reach stakeholders out of their home county.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #5

1. Outcome Measures

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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	960

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
We want to know if Welcome to the Real World (WTRW) participants intended to follow recommended personal finance management practices.

What has been done
At the end of WTRW, we asked students what the intended to do with the knowledge they have learned or reviewed.

Results
Of 239 student evaluated at the end of WTRW: 97% said they would think about their future education plans and choices, 91% indicated intention to go to college or get vocational training after high school, 96% said they would save at least 10% of their take home pay, 89% said they already have or will open a savings account, 77% indicated that already have or will open a

checking/debit account, 94% said they would keep track of checking and savings balances, and 95% indicated they would make spending choices based on their income.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #6

1. Outcome Measures

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
2016	320

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Poverty educator and author, Ruby Payne, teaches the differences between socioeconomic classes. People living in poverty focus on different priorities than people living with higher income levels. Financial literacy programs tend to be written for middle income populations focusing on budgeting, saving, retirement, etc. But if one is struggling to find a safe daycare, if they don't have "normal" resources to pay bills, if retirement is simply a dream, low to no income families still need the basics but with a twist.

What has been done
The Consumer Financial Protection Bureau developed a toolkit called Your Money, Your Goals that addresses low income financial issues. Each module focuses on a topic that is relevant and helpful for people struggling with low income and provides resources to help them achieve greater goals. To reach larger audiences, the local HeadStarts were collaborated with to train counselors, teachers, and parent supporters.

Results
By providing resources and training to field workers, the team has the ability to reach a greater number of individuals. Some of whom they would never meet due to transportation issues, childcare challenges, and lower financial ability. In this day-long training, the toolkit was the focus,

but they also covered "hot" topics that are relevant to the trainers and the families they work with. The trainers absorb the information for their own personal use. By making them comfortable with the information, they can share it confidently with their families. Combining their efforts, they asked to keep the leftover manuals to give to absent teachers and have already started developing their resource manuals, a list of resources that can help them with challenges their clients might have. This toolkit is a great starting point and provides them with a reference guide to help get their families the tools they need to be successful now in their current situation and to excel in the future.

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
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

The natural disaster of fires throughout the state of Idaho in the fall of 2015 created a great increase in awareness in and desire for information to prepare for disasters. This also led to individuals seeking information on how to replace their lost or damaged documents when the natural disaster impacted them personally. This led to increased financial documents record keeping classes offered and attended as well as the bulletin Replacing Important Lost or Damaged Documents in Idaho.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Solid Finances is the focus of evaluation results this year for the Family Econ Topic Team. Solid Finances webinars are evaluation via post-session questions. For the library trainings of Solid Finances, pre- and post-tests were given to attendees. A follow up survey of attendees will be conducted in the spring of 2017. All of this data will be analyzed by the SSRU Unit on campus with results available in the early summer of 2017.

Key Items of Evaluation

The Stash Your Cash project received the 2016 Excellence in Extension Award. The complete IMPACT statement is available at: http://www.uidaho.edu/extension/about/impacts. In 2013 the Commission received a Financial Industry Regulatory Authority (FINRA) Investor Education Foundation Grant to implement a Smart Investing @Your Library project. Their "Stash Your Cash" project was designed to

promote financial literacy within library communities by providing the necessary materials and training to determine each community's financial literacy needs and provide the resources and training to meet those needs. Pre- and post-evaluation results for the library staff training collected by the Social Science Research Unit at the University of Idaho concluded that:

- Participants had greater knowledge of financial literacy concepts and gained confidence in their abilities to guide others as a result of the training;
- Participants increased their knowledge of quality print and online financial literacy resources and their use;
- Participants increased confidence in their ability to build effective financial literacy programming with first steps of identifying potential target audiences and their needs; and
- Participants were able to identify one potential new partner to support financial literacy campaigns for their communities. The most common potential new partner identified was University of Idaho Extension.

It was determined that the training program met all desired outcomes and successfully assisted library staff in becoming financial literacy guides who are knowledgeable of information resources and concepts with the ability to develop effective financial literacy programming for their communities. Library staff increased their ability to meet the financial needs of their community.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	3.5	0.0	2.0	0.0
Actual Paid	4.5	0.0	1.5	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**
108869	0	146558	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
108869	0	146558	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
369199	0	613910	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Farm and Ranch Management team reported 4,925 direct educational contacts and 52,507 indirect contacts. Team members published 4 refereed journal articles and 8 University of Idaho Extension publications. In addition to articles in refereed journals and Extension publications, team members devoted 39 faculty days to evaluations, consultations, and farm visits, making 314 contacts. Team members also participated in projects supported by $2,038,910 in grant funds.
The team provided a variety of other training activities related to farm management, farm succession and estate planning, bull grading, business structures, cash flow, commercial law and bankruptcy, employee compensation, machine costs, balance sheets, marketing on the web, factors that affect profits, climate change adaptation, and water and economy. Individual schools included Farm Financial Management School (11 events, 102 learners) and Forage School (2 events, 104 learners).
Three tribal members successfully completed an eighteen-week farm business management course; scholarships were available through cooperation with the tribal tax department. Additional classes held include Excel Essentials (7 dates, 32 total hours, and 49 learners), Farm Management (17 dates, 51 total hours, and 227 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 very 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 2016, six Ag Outlook seminars and presentations reached 405 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 to improve producers' ability to make sound financial decisions about their operations. A new crop enterprise budget was developed for dryland wheat production and included different rainfall zones and production methods.
Other activities include Nez Perce Farm Safety Day (reached 88 youth), testimony before the Idaho State Legislature on Idaho's agricultural economic outlook (2 times), working with students, and providing assistance to a grower cooperative to provide members with safety training information for their workers during growing season. One team member negotiated with the Shoshone-Bannock Jr./Sr. High School to conduct a farm business management program at the high school for 2016-17. This 18- week farm business management course in Fort Hall is aided by a tribal scholarship program, which will pay course fees for 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, improve their efficiency, and evaluate alternative crops/cropping systems or alternative livestock/livestock production systems. Other target audience members include Native American farmers and ranchers, farmers and farm workers with disabilities, female producers, lenders, industry personnel, planning and zoning boards, water boards, insurance agents, service providers to farm and ranch managers, postsecondary agricultural students and instructors, and state and local government.

3. How was eXtension used?

It was not reported whether eXtension was used in this program.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4602	52182	323	325

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	2	2	4

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Farm Management Schools/Classes.

Year	Actual
2016	6

Output #2

Output Measure

- Crop & Livestock Costs and Returns Estimates Published.

Year	Actual
2016	7

Output #3

Output Measure

- Media Contacts.

Year	Actual
2016	48

Output #4

Output Measure

- Workshops/presentations at Commodity Schools/conferences, Farm Management Schools or other appropriate venues.

Year	Actual
2016	67

Output #5

Output Measure

- Office/one-on-one consultations

Year	Actual
2016	331

Output #6

Output Measure

- Hits on Idaho AgBiz web site

Year	Actual
2016	4601

Output #7

Output Measure

- Pupular press articles and papers in prodeedings published for commodity schools

Year	Actual
2016	44

Output #8

Output Measure

- Trained graduate students

Year	Actual
2016	4

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 and 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 and other resources distributed

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	1594

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Agribusiness is Idaho's largest industry therefore monitoring the financial health of Idaho agriculture is a continuous concern for policy makers and industry leaders. The financial condition of agriculture can be very volatile. Timely information has not always been available for state legislator's regarding the financial condition of Idaho agriculture.

What has been done
The team produces a tri-fold which is the most widely circulated publication CALS has ever produced. The information is reported in every major and minor newspaper in Idaho and the Northwest. The financial condition is one of the extension programs given as testimony to the state legislature. The information is the basis for numerous agriculture conference and workshops throughout the year (Food Producers, the President and Provost).

Results
This financial conditions program has propelled the University of Idaho to be the foremost spokesman for Idaho agriculture. Without this program, CALS would have less presence within the state legislature, newspaper visibility, and recognition by other agriculture groups. The result is that CALS has eclipsed other Idaho agriculture groups in testimony before the state legislature. Requests come in throughout the year from legislators, Lt Governor, Farm Bureau, and many other groups for additional analysis or presentations.

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
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	362

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many producers need information to help them manage their operations. Decisions need to be made on a daily basis to help them be successful and keep their businesses profitable in the community.

What has been done
Forty producers completed the Farm and Ranch Management training in Rexburg, Blackfoot, and Montpelier.

Results
An evaluation of the program showed the following: After the training 92% of the producers could answer the three course objectives: 1. Where are we now? 2. Where do we want to be? 3. How do we get there? 100% wrote a mission statement, set strategic goals, and completed an income statement, balance sheets, and a financial analysis. Most completed enterprise budgets and cash flow budgets for the coming year. 100% said they would or already had recommended the program to a friend.

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
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	32

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Clientele are looking to improve their knowledge on farm and ranch management issues.

What has been done
A variety of farm and ranch management programs were provided throughout the year including the North Idaho Forage School.

Results
Farm and ranch managers increased their knowledge and were better able to manage their complex operations, including soils and fertilization, hay varieties and trial results, timely use of cover crops for grazing of forage production, new federal crop insurance programs for hay producers, noxious weed update, pest management, crop choices, and pasture management. The first North Idaho Forage School in November 2015 was so well received producers stated that they would like it to be an annual event. The school in 2016 expanded to include more grazing and forage topics.

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
2016	93

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
New borrowers often do not understand the value of financial reports for their operation. This makes it difficult for those producers to adjust farm operations to help profitability.

What has been done
A farm management class was organized to help new borrowers acquire the skill to be able to produce the necessary financial statements to be able to see progress on their operations.

Results
Eighteen people on 16 operations completed the necessary financial statements to be able to calculate the financial ratios to help them be successful for the future. Several of the producers were able to reproduce financial statements 8 months after the class. This is an impact for those people and 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
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Weather conditions often make it difficult to produce on the farm. In the past few years, drought conditions have been prevalent as well as, conversely, an overabundance of water in production areas. Combine the weather with an economy that becomes stressed due to lower prices then add government regulation of water and irrigation and this creates the perfect storm for producers who now want to gain knowledge about tightening the financial belt and doing a better job of planning production for the coming year. Classes were taught to help producers evaluate their farm operations and also to plan for markets and the costs of inputs to help them live through price depression. Ideas have been given to help producers find ways to live through government regulation to help control water usage in the future.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The evaluation results of the farm business management course participants indicated 100% had an increase in knowledge of farm business management principles, computer, and Excel spreadsheet use.

Key Items of Evaluation

One of the best impact stories was the simple fact that three tribal members were able to successfully complete an eighteen-week farm business management course that required dedication and hard work. All three have signed up for the 2016-17 course. This is due to the fact they were able to apply principles learned in their daily lives to empower them to do better in their personal and agricultural work endeavors.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	3.7	0.0	1.5	0.0
Actual Paid	3.6	0.0	2.2	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**
104352	0	146512	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
104352	0	146512	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
319640	0	954811	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Food Safety team delivered more than 150 educational programs to widely diverse audiences, totaling 4,804 learner contacts. Thirty-three food preservation classes were delivered to 552 learner contacts during 2016. Topics of individual workshops and presentations ranged from cross contamination to canning specialty foods. The Food Safety Team generated projects supported by $12,650 in grants. Nineteen workshops for Master Food Safety Advisors resulted in 227 educational contacts, while another thirteen classes for advanced Master Food Safety Advisors were delivered to improve skills and enhance volunteer retention for approximately 121 continuing volunteers. Preserve@Home is a web-based course that was taught with educators from five Idaho counties, plus educators from Colorado and Oregon.
UI Extension facilitated the delivery of 68 Ready, Set, Food Safe classes taught in 4 counties, resulting in 1,787 graduates who completed the safe food handling certificate program. More than 257 Idaho children participated in Germ City at elementary schools across the state while 851 completed a handwashing workshop in three counties. Food Safety faculty and Master Food Safety Advisors presented 26 workshops on food safety instruction and reached 648 learners, and faculty reached another 3,452 individuals through booths and tables at 42 health fairs, farmers markets, preparedness fairs, and county fairs. 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.
Food safety programs delivered to industry included Food Safety Technical Assistance, organization development for a Nampa dairy ingredient/cheese processor, and the Food Safety Certification Project. Public workshops included Introduction to FSPCA Preventative Controls for Human Food, Internal Auditor, Practical Food Safety and HACCP, Seafood HACCP Segment II, 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, 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?

It was not reported whether eXtension was used in this program.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	6284	47393	13276	452

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

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	5	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of food safety calls answered.

Year	Actual
2016	6621

Output #2

Output Measure

- Number of new certified Master Food Safety Advisors.

Year	Actual
2016	28

Output #3

Output Measure

- Number of re-certified Master Food Safety Advisors.

Year	Actual
2016	89

Output #4

Output Measure

- Number of people taking preserve@home

Year	Actual
2016	74

Output #5

Output Measure

- Students receiving a RSFS certificate.

Year	Actual
2016	1753

Output #6

Output Measure

- Participants in hand hygiene education programs.

Year	Actual
2016	1223

Output #7

Output Measure

- Number of people participating in food preservation classes.

Year	Actual
2016	276

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
2016	61

Output #10

Output Measure

- Number of food preservation equipment safety checks.

Year	Actual
2016	548

Output #11

Output Measure

- Trained graduate students

Year	Actual
2016	4

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: Other scientists are aware of our research findings. I: Number of refereed scientific journal articles.
7	O: Interested consumers will learn skills through Preserve@Home I: number of people completing program
8	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 food safety related
9	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.
10	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.
11	Increasing daily and seasonal fluctuation of temperature in addition to the variability in precipitation due to climate change can affect mycotoxin production.

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	2370

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
One out of six Idahoans are affected by food borne illness; some groups such as elderly, pregnant women, and children are particularly vulnerable. Knowledge about safely storing and preparing food is declining as this information is omitted from school curricula. Annually, about 6,000 consumers call Idaho Extension offices for food safety information.

What has been done
UI Extension has established itself as a reliable source of safe information for home canners. With all of these questions coming into the offices the team wanted to see how many people were actually using the advice that was being given.

Results
The team determined that a majority of the people calling in with questions were planning to use their advice or information.

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
2016	2841

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In the United States there is an estimated annual occurrence of 48 million cases of food-borne illness. There are 128,000 hospitalizations from food-borne illness and 3,000 deaths.

What has been done
University of Idaho Extension offers the Master Food Safety Advisor Program (aka, Master Food Preserver) to teach individuals how to safely preserve a variety of food products. Participants learn how to produce high quality preserved foods. After completion of the coursework, participants provide 30 hours of volunteer service to provide reliable, research-based food preservation information to others in their community.

Results
Forty-nine trained volunteers donated 1,152 hours of food safety education to the communities in the greater Treasure Valley area. Their time can be valued at $25/hr ($28,800).

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	1753

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
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
The purpose of Ready, Set, Food Safe is to teach food safety to high school students, as it applies in Idaho food service settings. Students can receive a State of Idaho-approved certificate in food safety.

Results
Knowledge gained: 1,735 passed a rigorous state approved exam with an 80% or higher.

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
2016	1150

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Illness is a major contributor to absenteeism in schools. In K-12 grade school students, the transmission of communicable diseases is the cause of more than 164 million lost school days per school year. Hands transmit a majority of infectious diseases.

What has been done
Hand washing is the single most important and effective method of preventing the spread of diseases. Hand washing education was provided to 392 3rd graders in 2016. This education included verbal instruction on why and how we wash our hands, a hands-on application of hand washing, and then a discussion on when you should wash your hands.

Results
Out of 392 students, 110 children?s hands were swabbed before and after they washed their hands. These swabs were then transferred to petrifilm and those results are currently being analyzed.

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.

   Not Reporting on this Outcome Measure

Outcome #6

1. **Outcome Measures**

   O: Other scientists are aware of our research findings. I: Number of refereed scientific journal articles.

   Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

   O: Interested consumers will learn skills through Preserve@Home I: number of people completing program

   Not Reporting on this Outcome Measure

Outcome #8

1. **Outcome Measures**

   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 food safety related

2. **Associated Institution Types**

   - 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	3263

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
People call or stop by with questions regarding food safety. It is important that they use the advice they are given in order to protect the well-being of everyone who consumes the food they prepare.

What has been done
When people asked for advice related to food preparation, storage, or preservation, a log was kept in order to record these questions. Also recorded was whether or not the consumer question asked could be categorized as food safety related.

Results
There were 24 people who contacted the office regarding food related questions. Nineteen (79%) of these questions could be categorized as food safety questions. In two other cases 47 out of 64 (73%) and 48 out of 88 (55%) 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 #9

1. Outcome Measures

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
2016	345

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many consumers have questions if their food preserving process is safe or the food that have been preserved is safe to eat.

What has been done
Many phone calls are answered concerning the safety of food preserved or the safety of food in general. Research-based information is given out as well as help with their safe food concerns.

Results
99% of the people say that they will use the information that was given to make a safe food choice.

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 #10

1. Outcome Measures

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
2016	66

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Home food preservation is increasing in popularity. In 2011, home canning product sales rose nearly 35% over the three previous years. However, many home canners are inexperienced and may not have been trained in safe home food preservation techniques. Additionally, with new methods of distributing and gaining information such as blogs, Pinterest, etc., unsafe food preservation practices are also reappearing.

What has been done
Preserve@Home is an online, six-week food safety and food preservation course. The course includes thirteen lessons of online and downloadable text, discussion board, real-time weekly chats, visuals, handouts, quizzes, FAQs, and links to government websites.

Results
Five 6-week online sessions of Preserve@Home were taught with Extension Educators from the Idaho counties of Bannock, Payette, and Cassia, and also Oregon and Colorado. Sixty-six students completed with a grade of 80% or better which indicate increased knowledge of safe home food preservation methods.

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 #11

1. Outcome Measures

Increasing daily and seasonal fluctuation of temperature in addition to the variability in precipitation due to climate change can affect mycotoxin production.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Mycotoxins are toxic compounds produced by certain filamentous microfungi or molds. Some of these fungi may invade plants and cereal grains in the field during the growing season, as well as during postharvest handling processes such as drying and storage. Cereals grains are the most frequently affected commodity. Moreover, the stable nature of mycotoxins often leads to contamination of products in downstream processes including finished products destined for human and animal consumption.

What has been done
Soil-borne populations of Fusarium culmorum, a plant pathogen capable of producing deoxynivalenol during infection of grains, were elucidated for 9 fields across three different agro-ecological classes within the Pacific Northwest.

Results
By sampling from multiple quadrants within each field, it was discovered that F. culmorum populations show a very high degress of spatial aggregation. The inoculum level of F. culmorum, represented as a propagules per gram of soil, was found to significantly decrease in agro-ecological classes that commonly experience warmer winters and less annual precipitation. The reproductive fitness of all F. culmorum isolates was tested in vitro, and will provide a baseline comparison for future experiments under controlled laboratory conditions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

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 (Consumer and customer food safety expectations)

Brief Explanation

New FDA Food Safety Modernization Act regulations have driven the need for many food and dairy processors to participate in external training in order to receive a "certification" that is a regulatory requirement. Foodborne illness outbreaks continue to impact processors across the USA and drive higher expectations from both consumers and customers such as food service chains, grocery retailers, and industrial users. This frequently manifests in requirements that processors become certified by a Global Food Safety Initiative audit scheme, involving a third party audit.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In the Pocatello and Fort Hall onsite food preservation courses, 11 pre- and post- matched survey scores indicated a 72.8% increase in self-efficacy, 5.5% decrease, and 11% of participant's self-efficacy stayed the same. The post survey narrative data revealed participants took the course to, "try something new with food," "refresh skills," and ensure "safety for my family." The online course surveys indicated 62% of participants learned new food preservation knowledge. Comparison of average post self-efficacy scores among the

three onsite courses were 28.2% at Jefferson site, 31.9% at Pocatello site, and 32.0% at Fort Hall location, which is a 3.8 total score difference. The online course pre-average self-efficacy score was 31.3%, with a post-average self-efficacy score of 31.8%, which indicated a 1.6% increase. The two onsite courses, located in Pocatello and Fort Hall with matched pre- and post- surveys, indicated 8.5% and 3.2% increase in self-efficacy scores, respectively.

Key Items of Evaluation

This year a team member had one community member who owned a pressure canner, but had never used it. After taking the class, she committed to and did use her canner with success.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	3.6	0.0	2.0	0.0
Actual Paid	4.0	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**
93358	0	124849	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
93358	0	124849	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
303630	0	889410	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 3,991 direct educational contacts through Extension and 409,712 indirect contacts. Team members published six articles in Idaho Farm Bureau publications, and participated in projects funded by $79,089 in grants.
Forest Management programs are largely centered in the forest-rich Idaho Panhandle and Northcentral 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. It alternates between northern Idaho and eastern Washington locations. 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 were 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; and a session where trainees spend a day with a natural resource professional and create a case study on the 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 2 years. In 2016, IMFS volunteers met for program development, shared ongoing volunteer experiences, and participated in field trips on the 2015 Clearwater Complex Fires and Stimson Lumber Company's Bayview Fire recovery efforts.
Education for loggers included beginning Logger Education to Advance Professionalism (LEAP) courses in Coeur d'Alene and Moscow, reaching 402 learners at 8 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.
About 29 workshops and classes were delivered by Extension Forest Management team members and drew 826 learners to study topics including mushroom hunting and growing, broadleaf weeds, control of invasive weeds, forest health, forestland grazing, tree identification and measurement, forest management technology, pruning to restore white pine, rural land purchasing, and variable density thinning.

Important work by Extension Natural Resources faculty occurred as part of committees and councils. Our faculty attended around 70 committee and council meetings in 2016. Notable among these were 15 meetings of a multi-agency fire recovery task force (responding to a very severe fire season) and 20 meetings with a regional development leadership effort (Clearwater Basin Coalition) 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, Extension faculty and educators, teachers, and youth. Delivering education and information to landowners affected by the 2015 wildfires was a special focus in 2016.

3. How was eXtension used?

Team members contributed to the eXtension CoP in Climate, Forests, and Woodlands.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3887	407912	104	1800

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	2	6	8

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of workshops, field days, etc.

Year	Actual
2016	46

Output #2

Output Measure

- Number of participants in workshops, field days, etc.

Year	Actual
2016	1412

Output #3

Output Measure

- Number of articles in popular and trade press.

Year	Actual
2016	13

Output #4

Output Measure

- Number of hits on UI Extension Forestry website, YouTube videos; number of likes on UI Extension Forestry Facebook page; number of webinar attendees.

Year	Actual
2016	16604

Output #5

Output Measure

- Continuing Education hours for foresters, loggers, & other natural resource Professionals.

Year	Actual
2016	3558

Output #6

Output Measure

- Trained graduate students

Year	Actual

2016 4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	O: Other scientists are aware of our research findings. I: Number of refereed scientific journal articles.
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	Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Numbers of participants indicating they will adopt various specific recommended practices.
4	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.). Numbers of programs.
5	Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Numbers of Idaho loggers gaining or maintaining enrollment in the Idaho Pro-logger program.
6	Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. Numbers of foresters gaining or maintaining enrollment in the SAF Certified Forester program.
7	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. Numbers of participants that have indicated they will take greater advantage of economic opportunities related to forests.
8	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. Numbers of participants indicating they will adopt various specific recommended forest management practices.

Outcome #1

1. Outcome Measures

O: Other scientists are aware of our research findings. I: Number of refereed scientific journal articles.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Biological control continues to be proven one of the most effective, environmentally sound, and cost effective pest management approaches used to controlling arthropod pests and weeds. Despite many advances in recent years, our practical and conceptual understanding of success and failure in applied biological control fall short of meeting certain and future requirements. Direct and/or indirect nontarget impacts to plants or ecosystems from biocontrol agents need to be understood. Since 2000, regulations on natural enemy importation and introduction have been tightened by USDA-APHIS PPQ. These regulations have required researchers to provide indepth studies be completed with rigorous data on the non-target effects of biological control agents they want to release.

What has been done
Research on the host finding behavior of the candidate biological control organism M. borraginis has been completed. In contrast to M. crucifer, experiments with M. borraginis used both chemical and visual plant cues to study the host finding and host recognition behavior of this seed feeding weevil. Similar to M. crucifer, it was found that this candidate biological control organism is environmentally safe because it responded with indifference or repellence to all confamilial plant species tested.

Results
The data of this work is currently summarized and will be used in the petition for release of this seed-feeding weevil (M. borraginis). The petition will be submitted during 2017 to USDA APHIS and Technical Advisory Group (TAG). The Ph.D. thesis resulting from this research has been prepared and will be published in 3 refereed journal articles.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

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
2016	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. 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
2016	422

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
Two-hundred and thirty-six foresters and other natural resource professionals attended UI Extension forestry programs in the Idaho Panhandle in 2015-2016, for 888 contact hours. Participants in the 2016 Family Forester's Workshop, indicated percentage knowledge increases ranging from 11% to 41% on: reforestation post-fire, unstable slopes post-fire, insects post-fire, range post-fire, invasive species post-fire, android forestry, silviculture and deer, and family forest economics/policy. Two panhandle teachers took the Forestry Shortcourse for credit in 2015-2016. Some teachers have used the Shortcourse 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 #4

1. Outcome Measures

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.). Numbers of programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	24

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 that offered some form of credits for maintaining certification in their profession.

Results
A total of 759 credit hours were earned by the 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 #5

1. Outcome Measures

Forest and Natural Resource Workforce Development: Workers in forest management related occupations have increased job skills and maintained certification requirements. 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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	680

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Maintaining pro-logger accreditation is important for forest sustainability and logger employment.

What has been done
Nearly 1,000 loggers have attended the 45 LEAP sessions offered annually in the Idaho Panhandle since 1994. 178 loggers participated in 3 LEAP Update sessions held in the Idaho Panhandle in 2016. Also, 630 loggers are enrolled in the Idaho Pro-Logger program.

Results
As a result of the 178 loggers' participation: 157 loggers will inform others about forest die-offs, 154 will reduce additional mortality from insects that breed in slash and winter damaged trees, 143 will improve salvage logging and silviculture, 125 will install stream crossings, 125 will inform others about Sustainable Forestry Initiative (SFI) changes, 119 will better reduce wood loss from fungi that invade dead trees, and 90 will use or inform others about tethered logging systems. Through communication from the Pro-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.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	26

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 that offered a total of 13.5 SAF Continuing Forestry Education (CFE) credits in 2016.

Results
Six foresters took advantage of this opportunity, earning a total of 30 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 #7

1. Outcome Measures

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. 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
2016	50

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 aimed to engender 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
Over 60% of attendees of the various programs indicated that they would implement or would use the information provided on economic utilization.

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 #8

1. Outcome Measures

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. 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
2016	2593

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 that communicate sound land stewardship principles to private landowners. Most programs are geared to the new or small-acreage non-industrial private landowner.

Results
Over 70% of respondents indicated that they will adopt one or more practices or will use the information presented.

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

The 2015 wildfires impacted programming in 2016 to respond to the needs of fire-affected land owners. Log prices, government regulations, and changing social values and demographics all affect the degree of active management on both private and public land.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

End-of-program evaluations are administered for many programs. These indicate a high degree of learning and willingness to adopt practices and knowledge learned, with a 57% average increase in knowledge reported across all programs assessed. In 2016 three retrospective surveys were conducted on land management programs conducted in 2014 and 2015 to see how many attendees had actually applied the knowledge and skills learned. These surveys found that 70% of respondents attending Rural Land Purchasing in 2014, and 60% of those attending in 2015 used the knowledge gained to purchase, manage, or sell rural property. Of respondents attending the 2015 program Conducting Your Own Timber Sale, 60% indicated they had used the knowledge gained to conduct a timber sale, and of those respondents attending the 2015 program Creating Your Own Forest Plan, 66% percent had begun work on a plan, with half of those having submitted the plan for approval to the district IDL forester.

Key Items of Evaluation

Probably the largest impact in 2016 was the continuing programing to address landowner and community needs arising from the 2015 wildfire season. Altogether 18 public events were held related to the 2015 wildfire season, in addition to two presentations at other events related to wildfire and weed management, as well as the distribution of printed materials on fire recovery and risk reduction. In addition, participation in the North Central Idaho Wildfire Restoration Group Leadership and Communications committees was a big part of a program to address coordinated response, public outreach, and assessment of the 2015 wildfires on private lands. The North Central Idaho Wildfire Restoration Group was the recipient of a $100,000 appropriation from the Idaho Legislature toward wildfire assessment and recovery efforts.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	6.9	0.0	2.0	0.0
Actual Paid	6.4	0.0	2.1	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**
237692	0	127088	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
237692	0	127088	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1039274	0	954878	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Health and Nutrition logged more than 700 individual teaching events and engagement activities in 2016. In total, these efforts reached more than 36,200 Idaho contacts. Team members published three articles in refereed journals, one University of Idaho Extension publication, and participated in projects funded by $626,026 in grants.
Faculty working on the Healthy Lifestyles/Physical Activity project presented in 188 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, 141 sessions of Strong Women were delivered for more than 2,245 contacts. Over 150 classes and workshops about nutrition (exclusive of the SNAP-Ed and EFNEP projects) provided information about healthy foods, MyPlate, etc., to more than nearly 4,000 contacts. In addition, 56 school presentations including Smarter Lunchroom reached 12,816 youth contacts specifically. Ninety-seven classes reached more than 3,505 youth and adults about preparing and cooking healthy foods including whole grains, fruits, and vegetables. Other activities included an e-Potato class, Dietary Guidelines Curriculum Development, and GROW Healthy Kids and Communities. Venues for classes include 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 (EFNEP and SNAP-Ed) delivered through UI Extension. Eat Smart Idaho delivered hundreds of classes reaching more than 22,695 contacts in 21 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, and Healthy Habits. Participants include youth, adults, elderly, educators, 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, 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

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	14496	486917	57719	7605

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	1	15	16

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Extension will conduct Eat Smart Idaho classes for adults and youth. Number of classes.

Year	Actual
2016	126

Output #2

Output Measure

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

Year	Actual
2016	450

Output #3

Output Measure

- FCS Extension faculty will use Healthy Habits to provide online health and nutrition information to participants. Number of participants.
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- FCS extension faculty will conduct healthy living classes to adults and youth. Number of classes.

Year	Actual
2016	1490

Output #5

Output Measure

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

Year	Actual
2016	450

Output #6

Output Measure

- Trained graduate students

Year	Actual
2016	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Adult Eat Smart Idaho participants will improve their diets after completing the Eating Smart Being Active course. I: 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	Participants in the Healthy Habits online course will improve their eating habits. Number of adult Healthy Habits participants who consume more fruits, vegetables, whole grains, or low-fat dairy products.
4	Participants in physical activity programs will improve overall fitness. Number of adults that improve performance in physical fitness assessments.
5	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.
6	Increased awareness/knowledge reducing the risk of osteoporosis in female athletes.

Outcome #1

1. Outcome Measures

Adult Eat Smart Idaho participants will improve their diets after completing the Eating Smart Being Active course. I: 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
2016	970

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Limited access to food has been linked to health conditions such as obesity, and health behaviors such as lower fruit and vegetable intake and lower rates of physical activity. In turn, these health behaviors are associated with increased chronic disease risk and healthcare 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
768 adults completed the Eating Smart, Being Active class series and associated pre-post Food Behavior Checklist. Of these, 31% reported in increase in whole grain bread intake, 22% increased low-fat milk intake, 38% increased vegetable intake, and 43% reported an increase in fruit intake. Overall, 71% of adults completing the series reported improved intake of at least one of the aforementioned food groups.

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
2016	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior

Outcome #3

1. Outcome Measures

Participants in the Healthy Habits online course will improve their eating habits. Number of adult Healthy Habits participants who consume more fruits, vegetables, whole grains, or low-fat dairy products.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Participants in physical activity programs will improve overall fitness. 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
2016	523

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Teaching children to develop healthy habits by providing healthy eating and increased activity helps balance their energy intake with energy expenditure and is an important aspect to maintaining healthy weight, preventing becoming overweight and obese, and minimizing chronic disease risk.

What has been done
Activity trackers were provided (Fit Bits) to fourth grade students at Fruitland Elementary. Also classes were provided about eating 5 fruit and vegetables, watching 2 hours or less of recreational screen time, getting 1 hour or more of physical activity, and partaking in 0 sugary drinks.

Results
Students only wore the activity monitors during the school day. The average number of steps that students took during the day was 5,580. Superintendent reported that students were being more active during recess.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

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.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Increased awareness/knowledge reducing the risk of osteoporosis in female athletes.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Fifty-two percent of adults over 50 years have osteoporosis, which can result in poor mobility and decreased quality of life. Young women and girls who experience the female athlete traid (Triad) are similarly at risk for bone loss because of the hormonal changes that occur with this syndrome. The Triad is a condition characterized by inadequate nutrition, menstrual irregularity, and bone loss. The Triad can increase risk for osteoporosis and stress fractures now and in the future, thus increasing medical costs.

What has been done
The Female Athlete Triad video that includes perspectives of a researcher, former athletes, a coach, and a registered dietitian was produced. Data collection/analysis is underway to assess changes and knowledge among university-level and high school athletes.

Results
The Female Athlete Triad video was used as part of a continuing education sports nutrition symposium for coaches, fitness professionals, etc. This video has been shown to over 40 nutrition students, 93 health professionals, over 41 university-level athletes and dancers, and 98

high school students.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges
- Other (New hire, life style changes)

Brief Explanation

Public priorities are ultimately affecting the outcome of success for programs within Health and Human Nutrition. Despite the increase in education and information disseminated on the importance of being healthy, eating healthy, being active, etc., a large portion of the public find other priorities in life (work, school, family) that create a barrier to living a healthy lifestyle. Continued efforts will be made to access all individuals and to determine the most successful methods to educate on living healthy lives.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Class participants filled out surveys following the Meal Planning in Less Time and the Cooking Gluten Free classes. The surveys asked participants about the knowledge they had gained and what new knowledge they planned to apply in the future. All class participants reported that they had learned at least one strategy they planned to use when planning meals for their family. In the Cooking Gluten Free class, all participants reported having learned at least one new strategy that will help them to prepare healthy gluten free foods.

Key Items of Evaluation

One of the best impact stories is the Intro to Cooking class that was taught to youth. This class was taught to developmentally disabled youth at Syringa Family Partnerships. Each of the children who participated had a one-on-one therapist who assisted them during the class. All of the children got to actively participate in the preparation of the meal. They worked together to prepare a cheesy bean noodle bake, corn bread muffins, a green salad with homemade dressing and apple-banana kabobs. After the meal was prepared there was a family style dinner and a discussion about the types of food in the meal, which food groups they belonged to, and the health value of the foods.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	4.6	0.0	9.0	0.0
Actual Paid	5.6	0.0	7.3	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**
305926	0	458648	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
305926	0	458648	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
330357	0	3549593	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 18,860 direct educational contacts through Extension and 279,925 indirect contacts. Team members published ten articles in refereed journals, seven in Extension publications, and participated in projects funded by $227,068 in grants.
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 composting, air quality, cover crops and cropping systems, corn, snowmelt modeling, manure and native soils, soil analyses, and nutrient management research. 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, reduced power consumption and use efficiency, Low Elevation Spray Application irrigation technology, and native shrub gardens. One faculty member delivered a field day featuring research results and techniques applicable to dairy farms related to ammonia emissions reduction using a zeolite filter, a manure centrifuge used to increase the solid separation, a manure storage pond mixer and pump couple to a manure injection system.
Consultations included soil analyses and surveys for disease and pest issues that reached 131 individual stakeholders, including industry representatives, watershed advisory groups, individuals, Idaho Department of Environmental quality, and local government. Over 100 presentations were delivered at workshops, conferences, and events, providing education to 5,520 adult learners on industry-critical topics as well as those topics that are relevant to communities and to individual stakeholders. Forty-two presentations for youth audiences reached 2,324 learners about topics including water chemistry, soil conservation, and snow science.
Team members continued their work on three pesticide safety education manuals including laws and safety, weed management, and vertebrate management, which enhances stewardship principles and knowledge, water quality, resistance management, pollinator protection, and drift. In addition, pesticide certification and re-certification classes reached 714 learners.
The IDAH2O program was delivered through 9 workshops reaching 127 stakeholders in 7 counties and resulted in a new cohort of IDAH2O Master Water Steward volunteers who are working with watershed-scale research and monitoring programs. Other activities included a 4-H Water Education program and 6th grade Hydrology/Weather/Climate presentation.
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 public affected by water and waste management issues provide input and feedback about programs and participate in educational programs, including homeowners, students, and realtors.
- Small landowners (including but not limited to: recreational properties, small tracts of forest land, seasonal lake homes, etc.).
- Producers (animal, aquaculture, crop), processors, professional applicators, and industry representatives and professional consultants affected by waste management issues.
- Natural resource professionals and planners.
- Local and/or state officials who either develop or implement rules and regulations related to environmental quality.
- State and federal agencies personnel as well as affected NGOs.
- Others include: Federal water supply forecasters, scientists, landscapers, science and engineering students, 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

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	14813	279000	4047	925

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

Patent Applications Submitted

Year:	2016
Actual:	1

Patents listed

Patent: 066677, 05/15/2016, "Biochar Water Treatment"

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	1	50	51

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Educational workshops, seminars and presentations to producer groups: number of events.

Year	Actual
2016	54

Output #2

Output Measure

- Applied and basic laboratory and field research experiments, number of projects

Year	Actual
2016	15

Output #3

Output Measure

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

Year	Actual
2016	41

Output #4

Output Measure

- Tours and Field Days

Year	Actual
2016	12

Output #5

Output Measure

- Professional presentations; number of invited and volunteer papers presented.

Year	Actual
2016	38

Output #6

Output Measure

- CCA credits offered for participation in courses; number of credits offered.

Year	Actual
2016	17

Output #7

Output Measure

- Trained graduate students

Year	Actual
2016	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Participants use best practices for water, pesticide, nutrient, or waste management. I: Number of program participants indicating adoption of recommended practices (follow-up survey data) or indicating intention to adopt recommended practices (post-program questionnaire)
2	Producers are aware of issues and knowledgeable of practices that affect the environmental and economic sustainability of crop production. I: Number of participants reporting that their knowledge had been increased because of their participation in program.
3	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.
4	Producing and integrating time series of gridded evapotranspiration for irrigation management, hydrology and remote sensing applications

Outcome #1

1. Outcome Measures

Participants use best practices for water, pesticide, nutrient, or waste management. I: 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
2016	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Idaho dairymen lack education on how to handle nitrogen management issues related to field applications of dairy manure.

What has been done
The Idaho Dairymen's Association held a four-location workshop for dairymen in Southern Idaho, with the objective of providing nitrogen management tools and education that can be readily used and applied by dairymen. Information was presented by UI Extension faculty on manure management techniques to optimize yield and quality potential in high value crops, without causing nitrate or phosphorus environmental issues.

Results
Thirty-nine of the 39 responders either agreed or strongly agreed that they would be able to apply information provided at the workshop to their dairy and farming operation.

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

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	464

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Nutrient management professionals in Idaho are looking for guidance on how to incorporate new NRCS soil health information into their programs.

What has been done
Information was presented on soil health parameters that were tested on soils from a long term manure study at the UI Nutrient Management Conference, and preliminary recommendations were provided on the use of various soil tests for estimating soil health and nitrogen availability.

Results
Sixty-five of the 65 people who responded either agreed or strongly agreed that they gained an increase in knowledge on this topic.

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

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

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Idaho NRCS relies heavily on University of Idaho recommendations when making decisions about EQIP funded projects, supporting code 590 producers, developing the IdahoOnePlan nutrient management planning software, and other NRCS programs for growers. Travis Youngberg, the current Idaho state agronomist for NRCS, contacted the team on five different occasions, requested that UI recommendations were provided for specific practices that were not currently listed in UI publications.

What has been done
The specific topics for which guidance was provided included: 1) N recommendations for onion seed production; 2) Fertilizer recommendations for sunflower productions; 3) Recommendations for N fertilizer additives that truly have "slow release" properties; 4) Provide list of ALP approved soil testing labs; and 5) Determine if University of Idaho approved addition of "Haney" soil nutrient tests to routine soil nutrient tests listed in Code 590 standards.

Results

Below are the specific recommendations that were implemented by Idaho NRCS: 1) The team found one outdated California onion seed fertilizer guide, so they came to the conclusion that the University of Idaho onion guide would be their best option for N recommendations to an onion seed crop. 2) The team was able to guide Travis to IPNI estimate for nutrient uptake in sunflowers, along with sunflower guides from Kansas State University and North Dakota University, and an article from "The Sunflower" that was an update to the NDU Sunflower guide. 3) The team was able to connect Travis to Kurt Schroeder (UI) and Alan Blaylock (industry agronomist), who provided sound advice for Travis. 4) The team contacted Bob Miller directly to get the updated list of ALP approved labs in the Pacific Northwest. 5) The team advised that they not use the Haney tests at this time, as they have shown to be poorly calibrated for use on Idaho soils. The team has data to support this statement.

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

Outcome #4

1. Outcome Measures

Producing and integrating time series of gridded evapotranspiration for irrigation management, hydrology and remote sensing applications

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Evapotranspiration (ET) is the second largest component of hydrologic systems and water balances, following precipitation, and is the driving component for irrigation water requirements (IWR) of agricultural crops. Quantifying ET for specific crops and regions is required for design of irrigation systems, basin water balance estimates, irrigation water management, improvement of

crop yields and water-use efficiency and review and litigation of water right applications and disputes.

What has been done

Developed means to transform gridded (3-hourly and daily) North American Regional Reanalysis (NARR) and North American Land Data Assimilation Systems (NLDAS) weather data over historical times series into "conditioned" weather data series that can be used to compute gridded reference evapotranspiration (ET) representing the special and specific equilibrium conditions that will nearly always be experienced over irrigated surfaces. These gridded reference ET data sets are available for use in irrigation water management and planning, for hydrological studies and for interpolating between satellite-based energy balance determination of actual ET.

Results

The upward bias of air temperature and downward bias of dewpoint temperature in NARR and NLDAS data sets has been demonstrated by comparing ground-based point agricultural weather stations located in relatively well-waters settings. Gridded weather data sets are available on the Google Earth Engine. In addition, five training courses on the use of the UI METRIC model software for producing spatial ET maps from satellite imagery have been offered in the western US. These courses include description of gridded weather data sets, how to handle the data, where to access it and how to evaluate the data.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
132	Weather and Climate

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

Brief Explanation

Crop prices, system retrofit costs, reduced irrigation water supply, required groundwater pumping reductions due to court settlements, all impact how quickly producers adopt water-saving technologies.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Using a post class evaluation at a large pesticide recertification workshop, 43% of those questioned are using more IPM methods to control insects and diseases due to the information they have learned from attending these annual recertification workshops, and 57% are sharing the information they learn with employees or peers. As a result of

attending this workshop in past years, 47% believed they are making better decisions to prevent pesticide impacts to the environment, and 38% believe they and their employees are safer and more protected when applying pesticides.

Key Items of Evaluation

Extension educators have been teaching pesticide applicators at the Canyon County recertification workshop for many years. This year we collected survey data on those who have attended the workshop for several years. We were able to measure trends in the change of applicator's attitudes in the areas of environmental impacts, pollinator protection, and personal safety. For example, 83% of those at the workshop plan to re-evaluate the insecticides they use, in order to do a better job protecting pollinators. Forty-seven percent believed they are making better pesticide application decisions to prevent pesticide impacts to the environment. Over 64% of those surveyed plan to take more precautions to protect themselves and their families from pesticide applications and potential chronic illnesses, such as showering after working with pesticides and washing pesticide contaminated clothing separately from household laundry. These trends demonstrate that applicators are continuing to learn ways to better use pesticides and keep their communities safe and healthy.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	4.4	0.0	11.0	0.0
Actual Paid	5.5	0.0	11.6	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**
205413	0	285009	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
205413	0	285009	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
278537	0	6475632	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Members of the Potato Team reported 8,449 direct educational contacts through Extension programs and 84,820 indirect contacts. Team members published 11 articles in refereed journals and participated in projects funded by $1,374,764 in grants. Through consultation with individuals and small groups, they reached 283 individual learner contacts, including growers and industry representatives.
The Potato 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 potato production and storage. Members of the Team include disease and insect experts, fertility, irrigation, and harvesting experts, and storage and marketing experts. Team members meet regularly and otherwise collaborate with industry associations and the Idaho Potato Commission to understand needs of stakeholders.
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, pale cyst nematodes, potato psyllids, potato virus Y, aphids, wireworms, bacterial and lenticel soft rot, Colorado potato beetles, and potato germplasm. Ongoing work includes field and greenhouse experiments to understand the ecology and treatment options for serious potato pests in the field and in storage, nutrient management questions, and the value of various soil amendments. For example, a trial evaluating a biological control agent in conjunction with application of crop oils to minimize in-season potato virus Y spread was conducted. Field demonstrations help growers and other stakeholders understand the impact of various planting and pest management practices and irrigation needs and strategies.
Technical information was disseminated through county faculty, educational seminars, workshops, conferences, news releases, field and storage visits, phone calls, newspaper, trade journal and 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 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. Extension's Potato School reached 90 learners, and field days and tours reached 425 learner contacts, while the conference itself reached nearly 1,000 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, measuring potato dry matter content, and many more. Much of the Extension faculty's work is made possible through collaborations and participation on various citizen and professional alliances concerned with environmental quality and agricultural sustainability.

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 men, members of the Idaho Potato Commission and the Northwest Potato Research Consortium, USDA-ARS, USDA-APHIS, agricultural chemical company representatives, and other researchers and Extension specialists (U.S. and international).

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	8352	84820	97	0

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

Patent Applications Submitted

Year:	2016
Actual:	2

Patents listed
201600026 Potato, Payette Russet, University of Idaho
201600044 Potato, Pomerelle Russet, University of Idaho

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	5	38	43

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Seminars, workshops, field day presentations.

Year	Actual
2016	84

Output #2

Output Measure

- Trade Journal Articles.

Year	Actual
2016	23

Output #3

Output Measure

- Field Days.

Year	Actual
2016	9

Output #4

Output Measure

- Individual Consultations.

Year	Actual
2016	130

Output #5

Output Measure

- Graduate Students.

Year	Actual
2016	13

Output #6

Output Measure

- Workshops conducted.

Year	Actual
2016	16

Output #7

Output Measure

- Email Information Dissemination.

Year	Actual
2016	807

Output #8

Output Measure

- Potato costs and return estimates
  Not reporting on this Output for this Annual Report

Output #9

Output Measure

- Trained graduate students.

Year	Actual
2016	13

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	O: Plant virus-host interactions, epidemiology, and management of plant virus diseases in potato. I: Number of available disease free potatoes

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
2016	35

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Bacterial ring rot (BRR) causes devastating quality reduction in commercial potatoes due to significant decay that occurs with infection. This causes storage management issues.

What has been done
Information on sanitation and BRR biology was extended to the potato industry via workshops and presentations (8), newsletters and articles (5), emails, phone calls and other extension materials.

Results
There was a 90% reduction in BRR positive samples from 2013/2014 onwards (only 3 positive samples). 97% of the Kimberly potato storage advisory committee voted that education on sanitation was helpful in reducing BRR.

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
2016	25

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 results of monitoring program were disseminated to stakeholders weekly.

Results
Growers and crop consultants reported that the potato psyllids monitoring program helped them to 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
2016	205

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Foreign material is any material that is not the potato. Many foreign materials originate in the field, but others enter the product stream through equipment and storage and handling. Whether potatoes are destined for the fresh market or processing, foreign material is a great concern to the Idaho potato industry. By minimizing foreign material in the field, storage, and processing plant, growers and processors help maintain a high-quality product, safe standards, and consumer confidence.

What has been done
Information was provided to the potato industry via a newsletter sent out on the TVPestalert system. It directed the industry to the video "Continuing to Manage Foreign Material for Quality Idaho Potatoes" which outlines ways producers can reduce unwanted or foreign material in potatoes. The video (English and Spanish version) are available on-line. After the posting, approximately 75 people viewed the on-line educational video (Spanish and English) this harvest season.

Results
Employees viewing the videos will be better equipped to understand the importance of foreign material and put forth effort to minimize the presence in raw potatoes.

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.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	13

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

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

Outcome #5

1. Outcome Measures

O: Plant virus-host interactions, epidemiology, and management of plant virus diseases in potato. I: Number of available disease free potatoes

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Idaho has large and diverse crop production agriculture, with a significant impact on the state and national economies. State of Idaho is the largest producer of potatoes in the U.S., with about one-third of the national production and more than 30% of the acreage in 2008; more than a quarter of U.S. potato processing capacity resides in Idaho. The Idaho potato industry has historically contributed over 5% of Idaho's gross state product. Therefore, production of disease free potatoes is an important economic factor.

What has been done
Several distinct pathotypes of Potato virus Y (PVY) were identified based on their interactions with N genes present in potato cultivars, including PVYZ and PVYE, and characterized biologically and molecularly (Karasev et al., 2011; Kerlan et al., 2011; Galvino-Costa et al., 2012a,b). A previously postulated Nz gene was proved to be inherited as a dominant single allele (Chikh-Ali et al., 2014).

Results
Multiple North American cultivars of potato were screened using five distinct strains of PVY to determine presence of the strain-specific resistance alleles in their genetic background, and both Ny and Nz genes
were identified in these cultivars; one cultivar, Yukon Gem, was identified as carrying multiple resistance alleles, including four new, putative resistance alleles conferring resistance to recombinant strains of PVY, providing a new source of resistance to recombinants of the virus (Rowley et al., 2015). A new syndrome, tuber cracking was described in specialty potato cultivars expressed in PVY-infected plants (Benedict et al., 2015).

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

The drought in the western states affected the quality of harvested and stored potatoes. The price of potatoes also affected adoption of some practices due to restriction in operating funds.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The annual Idaho Potato Conference was successfully planned and implemented in January 2016. Over 1,000 people attended the conference. Verbal feedback was very positive.

Key Items of Evaluation

The "WSARE Training IPM Professionals in a Rural Setting" workshop participants in June 2016 gained knowledge about weed identification during the sessions. There were some who did not have a field background and lacked even fundamental knowledge in this area. They were able to leave the workshop with confidence to identify weeds in the field. Some called and texted team members for the whole of the summer with I.D.s for positive confirmation.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	2.4	0.0	1.5	0.0
Actual Paid	4.1	0.0	1.8	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**
64312	0	37870	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
64312	0	37870	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
298436	0	992342	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The Small Farms and Community Systems team members reported 9,894 direct educational contacts through Extension and 88,086 indirect contacts, and participated in projects funded by $1,048,898 in grants. Successful grant proposals in 2016 included funding from the USDA-NIFA Beginning Farmer Rancher Development Program and SARE for sustainable agriculture research and education.
The Small Acreages and Emerging Specialty Crops team delivered a variety of intensive educational programs. Efforts to address the sustainable use of lands and natural resources included the "Living on the Land" course in three counties. The "Cultivating Success" course was delivered to 439 direct contacts with updated and expanded curriculum. Individual workshops and workshop series were delivered for clientele on a wide variety of topics including marketing, enterprise development, funding a sustainable small farm business, whole farm planning, livestock production, seed starting, global gardening, backyard poultry, weeds, pesticide recertification, hunger, composting, and home solar power.
Consultations with individuals or small groups, reached 657 individual learner contacts and covered topics such as soil interpretation, windbreak education, and hay and horse pasturing. Workshops, presentations, classes and field days reached nearly 1,103 learners contacts and included topics such as weed science, pasture irrigation, dairy goat and sheep, pesticide recertification, food culture and society, and pastured poultry. Educational events for small acreage farmers and ranchers were delivered through several conferences including the Western Idaho Ag Expo, Idaho Ag Summit, and the Women in Agriculture conference and individual workshops covered topics such as urban livestock, animal and vegetable production, and effective communication skills for women farmers.
Working with beginning farmers through farm tours, crop workshops, webinars, meetings, and calls the team had 1,414 contacts in 2016. Team members also coordinated to plan a Farm Law 101 workshop in eastern Idaho. One team member served on the Idaho State Department of Agriculture's Food Safety and Modernization Act Advisory Board and extended food safety education and outreach to small scale producer growers.
Team members collaborate in 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 helped develop a food wheel for Idaho to be used at promotional events and as an educational tool. Food security issues were addressed through small farms team members' participation in the Idaho Hunger 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, learn more about organic production and eco-labeling, and are interested in learning more about rural issues. Additional target audiences include local food groups, consumers of local foods, farmer's market shoppers, Master Gardeners, YMCA, local nonprofits, nonprofits, hobby farmers, small flock/backyard poultry producers, small ruminant producers, community leaders, general public, and Extension educators.
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. There is also the potential to reach Asian farming audiences.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	9053	86086	841	2354

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

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	4	1	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Small Farms / Marketing Conferences

Year	Actual
2016	2

Output #2

Output Measure

- Small Acreage Farming Course

Year	Actual
2016	6

Output #3

Output Measure

- Small Acreage Business Planning / Entrepreneurship Courses.

Year	Actual
2016	3

Output #4

Output Measure

- Land Stewardship courses.

Year	Actual
2016	3

Output #5

Output Measure

- Tours, Demonstrations and Field Days

Year	Actual
2016	16

Output #6

Output Measure

- Workshops and Shortcourses

Year	Actual
2016	12

Output #7

Output Measure

- Farmers Market Workshops/Trainings with ISDA

Year	Actual
2016	5

Output #8

Output Measure

- Trained graduate students.

Year	Actual
2016	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. I: 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 participating in University of Idaho Extension programming. I: 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. I: 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. I: 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. I: 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. I: 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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	890

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension is positioned to provide high-quality, researched-based education to stakeholders. Providing this program creates the potential for improved natural resources and more successful businesses. We have the opportunity to help increase the number and improve the success of small acreage farmers and ranchers.

What has been done
Cultivating Success offered a winter workshop series for beginning farmers in 9 locations statewide to 140 students. Women Conserving the Land offered a 2-part series, one in Pullman, WA and one in Moscow, to 55 landowners.

Results
98% of students in the beginning farmer course indicated their knowledge had increased in all of the topics offered. 95% of participants in Women Conserving the Land indicated they had an increase in knowledge.

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 participating in University of Idaho Extension programming. I: 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
2016	17

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Potential new farmers often do not have the necessary information to make informed decisions on best management practices as well as access to equipment.

What has been done
Our team offered a Starting Your Small Sustainable Farms workshop series. The course began with a webinar in January, followed by three full-day, facilitated webinar/in-person workshops covering whole farm planning (Jan.), sustainable crop production (Feb.), and sustainable livestock production (March) held on Saturdays. A wrap-up event was held in all locations in late March. Farm tours focused on crop and livestock systems were scheduled for each site in May and June.

Results
Over 66% of participants had established a personal relationship with a farmer they met in the course, and 91% planned to follow up with one of the experienced farmers in the future. Next in usefulness, and nearly equal to each other, were the selected reading materials, farm tours, Extension educators/ other professionals and in-class discussions and activities. Upon completion of the course, 83% of participants surveyed had identified their farm goals, 86% had assessed their resources, 72% had evaluated an existing or potential enterprise, and 56% had drafted a Whole Farm Plan. Participants were more likely to begin farming in the next two years, add a new enterprise, or explore a new marketing option after course completion.

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. I: 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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	27

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sustainable small farms protect their natural resources, are economically viable, and model practices that are socially just. New growers are often influenced most significantly by their peers.

What has been done
Past participants of Sustainable Small Acreage Farming and Ranching, and Living on the Land have returned to teach classes or host workshops/tours explaining or demonstrating adoption of sustainable practices in their operations in SW Idaho.

Results
Class participants rated our speakers and tours "valuable" to "very valuable" in helping them to achieve their goals. They also continue to have contact with some of the farmer mentors, which encourages peer-to-peer learning. The individuals who returned to teach and host have also reported increased traffic at their market booths/farm businesses as a result of their increased visibility through participation in our classes.

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.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

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 #5

1. Outcome Measures

O: More privately owned land in Idaho is being managed to reduce negative environmental impacts and conserve natural resources. I: 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
2016	1212

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Small acreage land owners may not be aware of the environmental impact on natural resources but have a unique opportunity to employ sustainable practices due to the scale of their operations.

What has been done
Small farm programming was targeted at small acreages. Some of the landowners attending courses had upwards of 200 acres but still self-identified as small.

Results
Through Extension programming, 80 acres are under continued organic certification and 450 dryland acres are employing sustainable methods for decreasing noxious weed pressure.

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. I: 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
2016	16

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 farmstands, team members were able to identify numerous graduates of their programs or individuals for whom they had provided private consultations who have started or are sustaining small acreage farm-based businesses.

Results
At least 12 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.

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
- Other (Regional communication, Maternity leave)

Brief Explanation

The ever-changing climate, public policy, education, and economy in Blaine County created a perfect environment for a "Starting Your Sustainable Small Farm in Idaho" workshop series. For example, drought is always on the forefront for farmers and local producers and adapting the way we farm is inevitable. Having access to new practices and information provided by the workshop was essential. The cities within Blaine County now allow backyard chickens and thus more individuals have access to farm fresh eggs.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Participants rated the quality of the Cultivating Success Program course sessions and tours highly across all locations. Participants overwhelmingly found the presentations and interactions with experienced farmers to be most useful in helping them increase their knowledge on the course topics presented, followed by webinar presentations created and delivered by teams of UI Extension faculty and farmers.

Key Items of Evaluation

This course was successful in reaching new audiences and connecting these audiences with high quality, reliable education and information that eased some of our staffing and geographic barriers. New and experienced small farmers and ranchers in nine communities were introduced to UI Extension, local resource providers, and each other, encouraging connections and potential local support networks.

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: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	9.0	0.0
Actual Paid	2.7	0.0	8.2	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**
121569	0	317889	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
121569	0	317889	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
169146	0	4264122	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 5,266 direct educational contacts through Extension and 604,945 indirect contacts. Team members published one article in refereed journals, two peer reviewed Extension publications (Oregon), and participated in projects funded by $375,081 in grants.
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, irrigation systems, and soil moisture relationships. Team members conducted numerous on-farm consultations for nutrient management and disease and pest control. Field studies and tours were conducted in collaboration with growers and in UI Agricultural Experiment Station fields to study pesticides, herbicide resistance, management of insect pests and their natural enemies, vole management, the effect of tillage, irrigation, and nitrogen on weeds and sugar beets, and the effects of row spacing, plant architecture, and herbicides on weed control in dry beans. Fifteen magnitude of residue pesticide trials for the Idaho Field Research Center were completed. A quinoa study was established in two locations with built-in collaboration with industry.
Pest diagnostic services and treatment recommendations were provided for growers. Pest monitoring and pest survey activities were conducted and coordinated by UI Extension faculty. Economically important pests and pathogens were studied and significant efforts were devoted to weed management, pesticide registration, and development and extension of knowledge about Integrated Pest Management (IPM) tools. Pesticide applicator re-certification and pesticide safety training were offered in both English and Spanish. New and practical information was shared through Extension workshops, at commodity schools, and through presentations at grower and industry meetings and conferences. Papers were presented in Belgium, the Czech Republic, and New Mexico. One member participated in the TV pest alert website and evaluation.

2. Brief description of the target audience

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, and farm workers are a targeted audience of this program. Other targeted audiences include sugar beet growers, growers of minor crops, and those who advise growers (i.e., 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

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4920	604945	346	0

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

Patent Applications Submitted

Year:	2016
Actual:	4

Patents listed
PVP: 201600071, Mustard, India, IndiGold, University of Idaho
PVP: 201600064, Rape, Empire, University of Idaho

Patent: 62/359,574, 07/07/2016, "A Method for Controlling Sweet Potato Sprouting"

Patent: PCT/UD2016/041361, 07/07/2016, "A Method for Using Mustard Meal or an Extract Thereof"

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	2	11	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Extension workshops, schools and conferences.

Year	Actual
2016	10

Output #2

Output Measure

- Field tours and demonstration projects.

Year	Actual
2016	6

Output #3

Output Measure

- Applied and basic laboratory and field research experiments

Year	Actual
2016	34

Output #4

Output Measure

- Professional invited presentations.

Year	Actual
2016	1

Output #5

Output Measure

- Presentations at Extension Workshops, schools, and conferences

Year	Actual
2016	32

Output #6

Output Measure

- Sugarbeet costs and returns estimates
  Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Trained graduate students

Year	Actual
2016	6

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: Development of new research information. I: Research publications (peer reviewed).
3	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).
4	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.
5	O: Facilitating registration of pest management technology for specialty crops and specialty uses. I: Number of specialty crop pesticide registration applications.

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
2016	547

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 information was disseminated through the PNWPestAlert.net website.

Results
Following are some of the impacts measured from a year-end survey: pesticide applications were reduced by 18 percent, pesticide applications were more effective and timely 49 percent of the time, and 56 percent of the subscribers increased the use of field scouting to document pest levels. Since the program began 14 years ago, website subscribers are using 6.0 percent less pesticides on their crops than they were before they used the pest alert network.

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: Development of new research information. I: Research publications (peer reviewed).

Not Reporting on this Outcome Measure

Outcome #3

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
2016	25

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 2016 symposium: ? Participants indicated that they increased their knowledge of high residue farming in irrigated

systems by 36 percent; 77 percent said they were likely to try cropping practices that leave crop residue near the soil surface. ? Participants indicated their knowledge of using cover crops in no-till systems increased by 26 percent; 49 percent indicated that they were going to investigate more to see if cover crops can have a role in their farming operations. ? 88 percent of participants indicated there were likely to incorporate some of the 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 #4

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
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	121

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Production practices and challenges facing bean growers in the Magic Valley. Beans are a small crop by acreage but they are an important rotation crop for producers. Bean farmers face many challenges from weeds, disease, and insect pests. As a minor crop beans do not have nearly the focus of the major crops nor the number of controls for pests.

What has been done
The Magic Valley Bean School was planned, conducted, and evaluated. The evaluation was conducted by the Idaho Bean Commission.

Results
Ninety-eight producers attended the Magic Valley Bean School. Most indicated the program was good and that they gained knowledge in areas of weed control and mite control. Producers indicated that weeds and fertility were areas of challenge, and in doing so, they helped identify areas where UI can focus research efforts.

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

Outcome #5

1. Outcome Measures

O: Facilitating registration of pest management technology for specialty crops and specialty uses. I: Number of specialty crop pesticide registration applications.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Most of the food crops consumed are considered specialty crops, are grown on limited acres, and have a high economic value to the state of Idaho. The pesticide industry lacks financial incentives to support registrations for these specialty crops. Many Idaho and Pacific Northwest specialty crop producers are dependent upon these pesticides for their pest management needs.

What has been done
Research to enhance the development and registration of biochemical pesticides, microbial pesticides, plant incorporated protectants and other technology to manage pests for use in conventional and organic specialty crop production systems.

Results
Idaho completed 15 residues studies during the year and generated data that will be utilized to support pesticide registration packages for specialty crops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

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

After the EPA made the decision to not support the neonics class of insecticides due to the pollinator protection program, extension educators discussed this with commodity organizations who were looking for new pesticide registrations. The EPA needs to complete the regulatory studies for all insecticides in this class, once a pollinator determination has been made, new registrations may proceed. This should take about three years.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Educators continue to receive new registrations for herbicide use on teff. They have been able to expedite these registrations based upon earlier work in the grains crop group. Additionally, they have been able to expedite a new herbicide for quinoa. These are both very minor crops produced in Idaho as rotational crops.

Key Items of Evaluation

Growers and industry have shown their interest in adopting quinoa in southern Idaho. Team members developed field studies of multiple quinoa varieties in Aberdeen and Tetonia.

These field studies were developed in collaboration with industry.

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: 2016	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**
381304	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
381304	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2013716	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Team members reported 143,111 direct educational contacts through Extension and 191,161 indirect contacts. Team members published four articles in refereed journals, seven University of Idaho Extension publications, and participated in projects funded by $1,234,898 in grants.

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, 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 the Fruitland Fit Bit project, cooking classes, and implementation of 4-H Healthy Living Youth Voice Youth Choice and 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. In one county, scholarships are offered to the many teens that attend the Ambassador Conference, Teen Ambassador Leadership Kit (TALK) Retreat, Know Your Government Conference, Teen Conference, and other leadership opportunities 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 Native American youth and young people in juvenile corrections facilities: Rockin' the Rez Summer Youth Camp; teaching students about the first foods and native plants of the Coeur d'Alene people through an interactive nature walk during Water Potato Week; and the Juvenile Corrections Center University Fair in St. Anthony, Idaho, which reached 120 at-risk youth, giving them the 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. The UI faculty also worked closely with UI President Staben's office to partner with the Enroll Idaho program.

2. Brief description of the target audience

- Idaho youth and their families
- Youth in school enrichment and afterschool programs
- Low income youth and families
- Youth-at-risk, 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
- FFA members and advisors
- Fair participants and judges

- 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

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	16593	133938	18251	57223

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

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	4	4

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
2016	28697

Output #2

Output Measure

- Number of volunteers in educational classes and workshops.

Year	Actual
2016	3893

Output #3

Output Measure

- Number of opportunities to promote 4-H Youth Development (publications, newsletters, columns, radio PSA's, radio/TV appearances) written or developed.

Year	Actual
2016	401

Output #4

Output Measure

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

Year	Actual
2016	1124

Output #5

Output Measure

- Number of 4-H clubs or groups.

Year	Actual
2016	1163

Output #6

Output Measure

- Number of youth attending statewide 4-H events.

Year	Actual
2016	1091

Output #7

Output Measure

- Number of volunteers attending county, multi-county, district, state, regional, and national events.

Year	Actual
2016	1639

Output #8

Output Measure

- Number of hits on the web site each year.

Year	Actual
2016	48923

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Professional Development for 4-H professionals and volunteers, increasing awareness for 4-H Science project areas. Indicator: Number of workshops offered.
2	Increased knowledge of healthy beverage choices Indicator: Number of program participants who are able to identify what a healthy beverage is and why it is a healthy choice.
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 ES237 volunteer categories.
4	Increase adult participation in up-to-date, relevant Positive Youth Development, Leadership, and content-related training. Indicator: Total number of adults in each county who attend training and demonstrate knowledge gained in up-to-date positive youth development, content-related training, and leadership-related trainings.
5	Policy changes and cultural climate support to create acceptance of non-traditional programs and their participants. Indicator: Training on the use of culturally relevant curricula and resources
6	Increase youth awareness, application, and value of science in everyday life. Surveys using Common Measures Indicators.
7	Increase the number of educational opportunities to enhance animal husbandry knowledge among youth and adults. Number of educational opportunities offered.
8	The total number of youth and adults trained in communication, teamwork, and other community development skills will increase. Indicator: The total number of youth and adults who assume leadership roles will increase.
9	Increase support for under-served populations by developing programs specifically targeted for youth in non-traditional homes. Indicator: The number of partnerships through Extension and county offices with non-UI funded organizations, businesses, or agencies through cash funding (grants) or in-kind contributions.
10	Increase youth volunteer participation in leadership training. Indicator: Total number of youth in your county who attend leadership training, including positive youth development.
11	Increase the exposure to physical activity during 4-H events and activities. Indicator:Number of program participants who participate in at least 30 minutes of physical activity during a 4-H event and/or activity.
12	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.
13	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.
14	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.
15	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.

16	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.
17	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.
18	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.
19	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**

   Professional Development for 4-H professionals and volunteers, increasing awareness for 4-H Science project areas. Indicator: Number of workshops offered.

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   Increased knowledge of healthy beverage choices Indicator: Number of program participants who are able to identify what a healthy beverage is and why it is a healthy choice.

   Not Reporting on this Outcome Measure

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 ES237 volunteer categories.

2. **Associated Institution Types**

   - 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual

2016	1043

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Volunteers are the key component of program delivery in community clubs. The breadth and depth of our programming is limited by the number of volunteers we are able to recruit and maintain each year.

What has been done
Ada County 4-H continues to support volunteers by communicating with them regularly and providing one-on-one assistance as needed. The team has found these two methods to be very effective in making volunteers feel supported in their roles.

Results
Volunteer numbers increased from 2015 to 2016. The result is more youth participating in our programs. Total club enrollment also increased in 2016, as did the number of youth who completed projects and displayed them at the Western Idaho Fair.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4

1. Outcome Measures

Increase adult participation in up-to-date, relevant Positive Youth Development, Leadership, and content-related training. Indicator: Total number of adults in each county who attend training and demonstrate knowledge gained in up-to-date positive youth development, content-related training, and leadership-related trainings.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	507

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

To maintain adult volunteers current on positive youth development, content-related, leadership training is imperative to keep the level of programming provided by those adults at a high quality. This increases the engagement and success of any program delivered by those volunteers.

What has been done
In one county all volunteers are required to attend 2 hours of training in Positive Youth Development, content and subject matter, or leadership development training.

Results
Adult volunteers in our program are more aware of how to effectively work with the youth in their program area and how the programs they deliver impact the development of life skills within program participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
806	Youth Development

Outcome #5

1. Outcome Measures

Policy changes and cultural climate support to create acceptance of non-traditional programs and their participants. Indicator: Training on the use of culturally relevant curricula and resources

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Increase youth awareness, application, and value of science in everyday life. Surveys using Common Measures Indicators.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Increase the number of educational opportunities to enhance animal husbandry knowledge among youth and adults. Number of educational opportunities offered.

Not Reporting on this Outcome Measure

Outcome #8

1. **Outcome Measures**

   The total number of youth and adults trained in communication, teamwork, and other community development skills will increase. Indicator: The total number of youth and adults who assume leadership roles will increase.

   Not Reporting on this Outcome Measure

Outcome #9

1. **Outcome Measures**

   Increase support for under-served populations by developing programs specifically targeted for youth in non-traditional homes. Indicator: The number of partnerships through Extension and county offices with non-UI funded organizations, businesses, or agencies through cash funding (grants) or in-kind contributions.

   Not Reporting on this Outcome Measure

Outcome #10

1. **Outcome Measures**

   Increase youth volunteer 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
2016	193

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increasing youth who are trained in leadership and positive youth development increases the likelihood that youth will continue in leadership roles including 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 6 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
Ten youth completed the program and projects including 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, promotional campaigns, and talking with the public. They also requested more training on dealing with disrespectful children in programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #11

1. Outcome Measures

Increase the exposure to physical activity during 4-H events and activities. Indicator:Number of program participants who participate in at least 30 minutes of physical activity during a 4-H event and/or activity.

Not Reporting on this Outcome Measure

Outcome #12

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.

Not Reporting on this Outcome Measure

Outcome #13

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.

Not Reporting on this Outcome Measure

Outcome #14

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
2016	1107

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Reducing consumption of sugary drinks is critical in improving the health of children. The overweight/obesity rate hovers at 28% for Idaho. One method to lower the rate is to teach children easy strategies to improve their health.

What has been done
The 4-H Food Smart Families Program, in partnership with Eat Smart Idaho, taught youth 4th-10th grades 10 hours of nutrition education classes including Think-Your-Drink on sugar in beverages, milk taste test, and label reading. The 4-H Common Measure-Healthy Living survey was given post program.

Results
From June through August 2016, 509 youth completed the survey. Indicating that it would be 'not hard at all' or 'a little hard' are the following results: 91% to choose water instead of soda pop or Kool-aid when thirsty; 86% to drink 1% or skim milk; 90% to drink less soda pop; and 93% to drink less Kool-aid. 80% strongly agreed or agreed that after the program they will drink more water.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
806	Youth Development

Outcome #15

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
2016	248

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Coeur d'Alene Tribal School has held a Culture Day two times per month for many years. Last year marked the first time the UI Extension has been invited to teach on content area not directly pertaining to the cultural practices held within the Coeur d'Alene Tribe.

What has been done
UI Extension was invited to teach on STEM topics such as Lego robotics, rocketry/aerospace, and electricity. These topics have allowed students to imagine themselves as engineers, scientists, mathematicians, and technology specialists for the Coeur d'Alene Tribe or elsewhere.

Results
Twenty students have participated in these groups over the last two school semesters. A school-wide Lego robotics display and demonstration was put on by student participants and cultivated an interest among parents and other students.

4. Associated Knowledge Areas

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

Outcome #16

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.

Not Reporting on this Outcome Measure

Outcome #17

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.

Not Reporting on this Outcome Measure

Outcome #18

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Under-served populations such as low-income or Hispanic youth are often not included in traditional 4-H programs, leading to a gap in the number of youth we reach. In 2016, we made a concerted effort to expand our outreach and collaboration with other nonprofit groups and demographics. This will help us to further our impact and make sure our programming is reaching all segments of our community.

What has been done

We increased outreach to the Hispanic Resource Center and are going to offer a Piñata Making 4-H club for the 2016-17 4-H year. We also added a gardening club in partnership with Full Circle Education during the summer of 2016, creating a relationship with a local nonprofit that is involved in school gardening and farm-to-school programming in our local school district.

Results
As a result, there are 9 new youth participating in 4-H clubs in our county, 5 of whom are Hispanic and Spanish speakers. We are continuing our collaboration with the Hispanic Resource Center and Full Circle Education for the 2016-17 year and hope to expand our reach even further within the next year.

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 #19

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
2016	1859

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Idaho's childhood overweight/obesity rate hovers at 28%. It is critical that 4-H promotes and incorporates physical movement when youth gather at meetings, events, classes, camps, etc. Teaching youth to be-on-the-move is a strategy that embeds understanding and implementation of physical activity and how it can improve overall health.

What has been done

The 4-H Food Smart Families Program, in partnership with Eat Smart Idaho, taught youth 4th-10th grades 10 hours of nutrition education classes including 10 minutes of physical activity during each session. The 4-H Common Measure-Healthy Living survey was given post program. Youth were asked if they agree, disagree or not sure on two indicators: "Being active is good for me" and "Physical activity will help me stay fit."

Results

On the post survey 93% (n=494) of youth agreed that being active is good for them and 90% (n=485) agreed that physical activity will help them stay fit. Through the 4-H Food Smart Families youth are learning how to easily incorporate movement into 4-H programming.

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

- 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 (New faculty; New area educator; Traveling time and distance; Personnel turnover; Program changes; Grant awards; New extension staff; College website management)

Brief Explanation

Youth programming often has to compete with school activities, youth sports, FFA, and other community programming. There are also many students who have both parents working and transportation is an issue for attending events. The Latino population is growing and extension educators are seeking new ways to serve this audience.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

It is important to educate youth livestock exhibitors, who are raising a product for human consumption, about factors that affect consumer acceptability and quality of their product. Results from the pre- and post-test evaluation showed that the youth increased knowledge in 1) quality assurance through proper injections and how that relates to the consumers. 2) The effect quality assurance practices have on the product the youth are raising for consumers. 3) The type of bedding has an impact on the health and management of their livestock. 4) The importance of financial record keeping and how it relates to monitoring profit and loss.

Key Items of Evaluation

The Intermountain Livestock Judges' Training has been conducted eleven times since 2004. The purpose of the training is to provide hands-on opportunities for participants to keep current on animal industry trends and how to work with youth as a livestock show judge. Training participants were asked to complete a survey about the training program. This year an article was published in the Journal of Extension citing the impact the program has had on participants. In all, training participants have judged 318 county fairs, 29 state fairs, and 15 regional shows. Further results from the survey indicate new judges are being trained, adding to the judging pool and trained judges had the opportunity to use skills gained to reach more youth. The number of judges that attended more than one time, indicates the training appeals to qualified livestock judges as a way to keep their judging skills current with the industry standards.
Participants were asked to answer the question, "How has the training influenced you?"
The following is a summary of those responses: 1) Provided species-specific evaluation framework and standards. 2) Increased accuracy of decision making. 3) Set a standard to measure my abilities by providing continuing education and updates of livestock industry trends in style and carcass industry demands. 4) Set framework for being a responsible judge. 5) Provided mentors to be inspired by and learn from.
The responses of the participants and the opportunity to be to have the results published in a scholarly journal indicate the importance of youth development programs and the success of this one.

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.