

2014 Montana State University Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

We are pleased to present the 2014 Montana State University Extension Annual Report. Over the past year as we celebrated the centennial anniversary of the Cooperative Extension Service, there were many opportunities to interact with people throughout Montana. It was fascinating to learn how intensely MSU Extension has impacted this state from the very beginning and through major events including two world wars, the Great Depression and the ages of industrialization and technology. From a time before well-maintained public roads and personal vehicles; before telephones, television and the internet; before indoor plumbing and refrigeration; much about MSU Extension has surprisingly remained the same. MSU Extension continues to work extensively at the grass roots level, hand-in-hand with people wherever they are, to bring the latest science-based knowledge to fields and town halls, all while being fully engaged in local communities.

Montana has eight public land-grant institutions, more than any other state. The Elementary and Secondary Education Reauthorization Act of 1994 designated Montana's seven tribal colleges as land-grants. These include Anaiih Nakoda College (Gros Ventre and Assiniboine on the Fort Belknap Reservation), Blackfeet Community College (Blackfeet on the Blackfeet Reservation), Chief Dull Knife College (Northern Cheyenne on the Northern Cheyenne Reservation), Fort Peck Community College (Sioux and Assiniboine on the Fort Peck Reservation), Little Big Horn College (Crow on the Crow Reservation), Salish Kootenai College (Bitterroot Salish and Pend d'Oreilles on the Flathead Reservation) and Stone Child College (Chippewa-Cree on the Rocky Boy Reservation). Montana is proud of this distinction and seeks continuing and new collaborations among land-grants and reservations.

Each of the seven 1994 institutions is found on a unique Montana reservation. These are: Blackfeet, Crow, Flathead, Fort Belknap, Fort Peck, Northern Cheyenne, and Rocky Boy. The seven reservations collectively span nine percent of Montana's land and include 12 federally-recognized sovereign tribal nations. These are: Assiniboine, Blackfeet, Chippewa, Cree, Crow, Gros Ventre, Kootenai, Little Shell, Northern Cheyenne, Pend d'Orieille, Salish, Sioux. The reservations are sovereign and tribal governments establish services for their citizens.

There are also many Indian people who live off-reservation in communities across Montana. American Indians comprise 6.5 percent of Montana's population and represent the largest group of potentially underserved citizens. Extension's Federally Recognized Tribes Extension Program (FRTEP) hosts agents on five reservations. These agents in particular, but all agents and specialists in general, work closely with tribal nations to provide a variety of opportunities. While in some cases there are specific programs for American Indians, most of Montana's programs include all citizens in a culturally-sensitive and appropriate manner that celebrates both similarities and differences.

MSU Extension has always maintained a close working relationship with the MSU College of Agriculture and Montana Agricultural Experiment Station (MAES). We have collaborated with them to fully integrate the much improved 2016 Combined Research and Extension Plan of Work. Along with a brand new university-wide reporting system, Activity Insight, which was brought online this year, the effort has

transformed how we report and will lead to more changes in the next year as we complete the 2014 Annual Report together for the first time.

For this final independent Extension report, we have organized into six sections. Agriculture; Energy and Natural Resources; Youth and Adult Development; Healthy Living, Nutrition and Food Safety; Community Development and Housing and Built Environments. As the goals and outcomes throughout this report attest, the challenges and opportunities in Montana are endless. Increasingly, Extension serves a growing, diverse constituency with fewer resources. MSU Extension consistently utilizes methods that are timely, relevant and cost effective. We are working to improve how we demonstrate impacts with meaningful qualitative data and quantitative evaluations. This is a work in progress.

As MSU Extension looks to tomorrow, we remain committed to the people. We will continue to reach out and extend resources, solving public need with university research and knowledge through non-formal, non-credit education. While the programs highlighted in this document represent only a portion of the overall work, we are confident the impact of the dedicated and talented individuals who drive Extension are clear. We appreciate this opportunity to share these accomplishments.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	33.0	0.0	0.0	0.0
Actual	176.0	0.0	0.0	0.0

II. Merit Review Process

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

- Combined External and Internal University External Non-University Panel
- Expert Peer Review

2. Brief Explanation

MSU Extension uses a Merit Review Process for the Annual Report and Plan of Work. Individual program leaders, agents and specialists are involved in the creation of the report at each step. Internal editors carefully read each section for content, grammar and overall quality review. In addition, an external Merit Review Panel consisting of passionate supporters with tremendous historical knowledge of MSU Extension and Montana carefully reviews the documents, providing important, expanded perspectives and input. The Merit Review Panel includes: Jim DeBree (33 years with MSU and Wyoming Extension, retired as Director of Wyoming Extension), Kirk Denny (former FRTEP Extension agent with 16 years of experience and enrolled member of the Northern Cheyenne tribe) and Charles Rust (retired agricultural economist and interim Director of MSU Extension). This group was selected due to their experience related to Extension, outreach education and Montana culture.

Comments from the Merit Review Team include:

- Staff are complimented on the variety of tools they used to evaluate the impact of programs.
- The weed and pest management efforts are impressive. This is critical to the enhanced production of both cash crops and the livestock range resource.
- The estate planning and financial management programs continue to remind people to take action on

their personal finances and end of life plans and decisions: the results are gratifying.

- MSU and volunteers in Fort Belknap improved access to wholesome locally grown food through community gardens and development of a \$400,000 grant funded trading post.
- Schutter Lab and crop specialists' diagnosis and management of Fusarium headblight on dryland winter wheat yielded impacts of \$900,000 on 3.6 million acres.
- Master Gardener volunteers contributed 30,242 hours of community service or \$660,924 worth of work for Montana communities.
- The highlighted impacts point out how MSU's assistance and leadership reaches most Montanans directly or indirectly.

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
- Survey specifically with non-traditional groups

Brief explanation.

Personal contact is one of the most successful ways for Extension to gain stakeholder participation. The clientele who use Extension regularly provide input about which issues are important to them, their families and communities. In addition, Extension professionals reach out to others by staying in regular contact with commodity associations, various government agencies and other partners to assure they are aware of and understand the most current needs and concerns of clients.

Extension agents are located within Montana communities and are an active part of the day-to-day functions of towns, cities, counties and reservations. Agents are often members of community foundations and boards (such as county or tribal weed boards, chamber boards, school boards, etc.) and use the knowledge and information they gain in this capacity, as well as face-to-face meetings, to prioritize and strategize the best use of their time, dollars and other resources.

Many specialists spend an abundant portion of their time in fields, gardens, feedlots and town halls with the people they serve. They know that they must have a close relationship with key stakeholders in order to receive honest feedback and to be considered as a valuable resource.

Radio, newsletters, newspapers, social media and electronic distribution lists are also used to inform clientele about the opportunity to make requests for Extension assistance. Informational booths are set up at agricultural trade shows, home and garden shows and health fairs, allowing for discussions with people who are not regular clientele of Extension. This kind of conversation reveals concerns and issues that might not be heard in the usual process. When common issues surface through these methods and the advisory process, they will be incorporated into Extension planning.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

The Montana Extension Advisory Council (MEAC) is a statewide group that meets at least twice per year to discuss the overall direction and priorities for MSU Extension. Membership on MEAC is based on geographic representation, areas of interest, a tribal representative and an elected 4-H ambassador, and previous relationship with Extension. Recruitment from specific sectors such as healthcare, government agencies and community development are also targeted. County agents and state specialists, Extension program leaders and regional department heads are asked to make recommendations for membership to MEAC. Those who are elected serve a three year term.

Many counties also have local advisory groups. Membership on these boards is achieved by sending an invitation to traditional stakeholder groups requesting the name of an individual who can represent views and provide input for Extension programming. A similar invitation is sent to nontraditional groups. In cases where a group may not be familiar with Extension, personal contact is made to explain the role of the representative.

During programs targeted at certain audiences (Expanded Food and Nutrition Education Programs (EFNEP), Supplemental Nutrition Assistance Program-Education (SNAP-Ed), attendees are asked directly for input or may be asked to serve on a specific advisory committee for the program area.

Occasionally, broad surveys or requests for information are made. For instance, in 2014 Flathead County did an extensive county-wide review of their programming that resulted in a full report that will guide their activities going forward.

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

Brief explanation.

The most common method of gathering stakeholder input is from interaction with regular clientele of MSU Extension. Often this occurs in intentional program planning sessions to which these people are invited, requested to attend or are required to be present by their role or position. Examples of groups that fall into this category are county/reservation 4-H Councils, livestock associations, weed boards, human resource coalitions, local and state agricultural organizations, Ag Research Center Advisory Committees and special interest groups. Some of these groups have offices or directing boards that are asked for specific input.

County and state advisory committees are also used to gather input. Advisory groups are generally comprised of a cross section of the leadership and citizens in the county. Efforts are made to involve the underserved and under-represented clientele by contacting agencies and organizations that work with this audience regularly. They are asked for input and/or for names of people who could provide input directly. Local Extension agents follow up with personal conversations to explain the goals and process.

At the state level, one of the most valuable sources of input is from the Montana Association of Counties (MACo). Extension makes presentations during MACo's Annual Meeting, followed by an open session for mutual dialogue. These types of discussions also happen during the newly elected county commissioner's orientation and have proven very beneficial. Extension administration, through the regional department heads (RDHs), also gather stakeholder information from county commissioners.

In addition, surveys are occasionally used to gather information at the local or state level.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- In the Action Plans
- To Set Priorities
- Other (Create a basis for additional resources)

Brief explanation.

Information gathered through the stakeholder input process is used to determine program needs and direction. In some cases, cross-county educational teams made up of county Extension agents, specialists, clientele and researchers are formed to develop and implement programs. At times, county agents are able and equipped to address the issue with resources from their office. At other times and when issues are determined to be a statewide concern, specialists become more involved with program development and direction than if they are responding to a single request for information.

Brief Explanation of what you learned from your Stakeholders

Montana stakeholders indicate that they are concerned about issues similar to those receiving attention across the nation. Many worry about job security and accessing health care in their rural community. Agriculture producers are concerned about holding a positive profit margin and using environmentally sustainable best-practices. Rural families wonder if local schools will remain open, or conversely if overcrowding and transiency will continue to cause issues. In those areas where

education can help address the issue, Montanans look to Extension as a resource so they can make choices and decisions that are best for their families, businesses and communities.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2712498	0	0	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	1564331	0	0	0
Actual Matching	0	0	0	0
Actual All Other	852764	0	0	0
Total Actual Expended	2417095	0	0	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

S. No.	PROGRAM NAME
1	Agriculture
2	Energy and Natural Resources
3	Community Development
4	Youth and Adult Development
5	Healthy Living, Nutrition and Food Safety
6	Housing and Built Environments

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Agriculture

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	5%			
205	Plant Management Systems	10%			
213	Weeds Affecting Plants	5%			
216	Integrated Pest Management Systems	10%			
301	Reproductive Performance of Animals	5%			
302	Nutrient Utilization in Animals	10%			
307	Animal Management Systems	10%			
308	Improved Animal Products (Before Harvest)	5%			
311	Animal Diseases	5%			
312	External Parasites and Pests of Animals	5%			
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%			
403	Waste Disposal, Recycling, and Reuse	5%			
601	Economics of Agricultural Production and Farm Management	10%			
602	Business Management, Finance, and Taxation	5%			
604	Marketing and Distribution Practices	5%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	0.0	0.0
Actual Paid	9.4	0.0	0.0	0.0
Actual Volunteer	15.9	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
937147	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
474720	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

MSU Extension agents and specialists work one-on-one with producers, landowners, land managers, youth and consumers to identify and address individual problems and solutions. They answer specific questions through phone calls and emails and are a first contact for many Montanans. Agents and specialists also offer classes, workshops, Webinars, group discussions, demonstrations, field tours/trials and more. Agents, specialists and volunteers disseminate knowledge to non-typical clientele through farmer's markets, fairs and other community events.

MSU Extension also utilizes PSA's, listservs, blogs, websites, newsletters, MONTGuides, Television, eXtension, AgAlerts, radio and other media.

2. Brief description of the target audience

- Livestock Producers
- Commodity Associations
- Land Managers/Owners (small and large)
- Weed Control Professionals
- County Weed Boards
- Small Grain Producers
- Native American Youth
- Tribal leadership
- Native American producers
- Farm and ranch families
- Beginning farmers and ranchers
- Gardeners and horticulturist
- Landscape and nursery professionals
- Vo-Ag teachers and others interested in Ag education
- Allied industry stakeholders

3. How was eXtension used?

Agents and specialists utilized eXtension to provide webinars and programming, share fact sheets, evaluate courses and programs (Moodle), conduct radio interviews, create Extension documents and as a

general resource.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	60543	525622	3389	20456

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

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	97	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Livestock: Number of producers attending meetings/workshops/clinics aimed at increasing profitability and knowledge of environmentally sustainable practices. Number of producers utilizing ration-balancing.

Year	Actual
2014	5064

Output #2

Output Measure

- Crops: Number of producers attending workshops, field days, research plot sites and research center summaries. Number of people adopting conservation practices. Number of producers using pulse crops in rotation.

Year	Actual
2014	12186

Output #3

Output Measure

- Range: Number of people participating in range monitoring programs and the Range Management Institute. Number of requests to identify or record new weeds found.

Year	Actual
2014	29

Output #4

Output Measure

- Weed and Pest Control: Number of people attending workshops, training, and/or tours. Number of people attending meetings on pesticide control and applicator training. Number of people being certified and re-certified for pesticide use.

Year	Actual
2014	9607

Output #5

Output Measure

- Master Gardener/Horticulture: Number of people who become certified Master Gardeners. Amount of food donated and number of hours volunteered.

Year	Actual
2014	34506

Output #6

Output Measure

- Junior Ag Loan Program: Number of youth completing quality assurance training and receiving loans.

Year	Actual
2014	83

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Livestock: Increase number of producers using Extension information to successfully balance rations for the least-cost formulation. Increase number of people who successfully use knowledge gained through Extension interaction to improve profitability, meat quality and use of environmentally sustainable practices.
2	Crops: Increase in number of producers who improve their understanding of nutrient cycling, weed control, variety selection and alternative crop possibilities. Increase in number of farm operators who implement best practices to increase profitability and enhance long-term sustainability.
3	Range: Increase in number of producers and small acreage landowners who are aware of insect, weed and disease infestations as they begin so they can make timely management decisions. Increased number of producers/ranch managers who implement range monitoring activities which lead to improvement in resource management strategies.
4	Weed and Pest Control: Increase in number of applicators who are certified and employ safety precautions and risk management while using pesticides in the most environmentally and economically effective manner. Increased use of the Schutter Diagnostic Lab and specialists to identify pest, disease and plants in a timely manner, and provide appropriate recommendations.
5	Master Gardener/Horticulture: Increased number of certified Master Gardeners, increased amount of food donated to community partners and increased number of volunteer hours.
6	Junior Ag Loan Program: Youth who complete the finance and beef management training, successfully obtain a loan and use it for the purchase of livestock to begin or expand their herd.
7	2014 Farm Bill Education and Outreach.

Outcome #1

1. Outcome Measures

Livestock: Increase number of producers using Extension information to successfully balance rations for the least-cost formulation. Increase number of people who successfully use knowledge gained through Extension interaction to improve profitability, meat quality and use of environmentally sustainable practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	5064

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Beef cattle production results in the greatest share of agriculture cash receipts in Montana. Volatile cattle and feed markets, as well as rising input costs, provide challenges to sustainable production. Extension is actively engaged with producers at all levels. The sheep industry has been directly tied to MSU Extension for more than 100 years. From generations-long breeding programs, to expansive grazing and weed control initiatives, to wool quality and marketing, Montana has crafted a niche in the wool and lamb industry through careful research and impactful engagement at all levels. Extension Livestock programs are part of the foundation of Montana's successful agricultural industry.

What has been done

Extension agents and specialists hosted classes, workshops, Webinars and one-on-one interventions with producers to improve profitability while applying the most current research-based best practices for specific client locations. They used social media, AgAlerts, press releases and personal contact to communicate urgent information related to weather. They used ration-balancing, alternate feedstuff analysis, nitrate testing and general nutritional information to prevent livestock loss, increase efficiency, lower costs and be environmentally friendly. They hosted the Annual Sheep Shearing School. Largely due to Extension's new reporting system, reported direct contacts related to livestock increased from 2555 in 2013, to 5064 in 2014, with more than 10,000 additional indirect contacts.

Results

Extension specialists are working with producers on a research project to identify the most effective nitrate testing kits for providing quantitative estimates of nitrates in forage. Through this project, Extension is directly helping to manage nitrate toxicity which is proven to prevent loss of

forage and negative health implications for livestock. Producers and agents who attended the Nutrition Conference and Livestock Forum reported overall satisfaction of 4.29 out of 5 with 5 being very satisfied and 1 being very unsatisfied. They reported increased knowledge of treating low quality forages, mitigation of impacts from the Atlas Blizzard and how to use social media to reach consumers.

Producers reported saving three percent on feed bills, or around \$35/head, due to Extension-provided information. This can vary widely depending on location, but with 2.6 million cows, the potential impact is huge. At least 20 graduates of the MSU Sheep Shearing School are currently working with Montana-based commercial shearing contractors.

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
312	External Parasites and Pests of Animals
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

Crops: Increase in number of producers who improve their understanding of nutrient cycling, weed control, variety selection and alternative crop possibilities. Increase in number of farm operators who implement best practices to increase profitability and enhance long-term sustainability.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	12186

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Field crops are an import foundation for Montana Agriculture. Faculty work one-on-one with producers to increase efficiencies while producing safe crops with the best possible yields. Cereal viruses represent a growing and complex threat to the sustainability of the cereal cropping system. The wheat curl mite vectors multiple viruses among grassy weeds and cereal crops. While wheat, barley, corn, oats and rye are all susceptible to viruses including Wheat streak mosaic virus, the impact of the more recently identified Wheat mosaic virus and Triticum mosaic virus are unknown. Understanding the spread of cereal viruses is critical as no effective chemical (acaricide) or genetics based (plant-breeding) management options exist.

What has been done

County agricultural agents work with local producers to provide direct, specific impacts. Specialists bring research to the agents/producers. As an example, one specialist working on research related to cereal viruses released 20 AgAlerts (emailed to 800 subscribers), three press releases, 23 presentations with 1529 participants, two outreach activities with 3100 participants and appeared on Montana PBS's Montana Ag Live eight times with an estimated audience of 10,000 per appearance. This specialist routinely responds to 750 contacts (phone, email and text) annually, mostly with disease questions. In 2014, Extension conducted five experiments related to NIFA funded proposals. Forty-six samples were submitted to the Schutter Diagnostic lab for wheat streak mosaic virus in wheat, up from three in 2013.

Results

The Schutter Lab identified an unprecedented, severe epidemic of Fusarium head blight (scab) on dryland winter wheat in northern Montana. The Lab offered management recommendations for future crops and confirmation of the vomitoxin, deoxynivalentol, in grain. They offered information on low quality seed, postharvest management and testing resources for moldy grain. This advice saves dollars and increases future production. Similar information about stripe rust in 2011 saved \$100 million in crop losses. Recommendations from the wheat virus studies include: timing and risk level in different locations around the state with pre-harvest volunteer wheat; final stages of testing for an insecticide for wheat curl mite management; variety susceptibility information; and nitrogen management. The Schutter Lab identified samples of Ascochyta blight in chickpeas and recognized widespread resistance to Headline and Xemium. The data is being used to encourage growers to rotate modes of action of fungicide when managing disease in their crops. Producers use this kind of Extension-based resources daily to make decisions that positively affect the profitability and sustainability of their operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Range: Increase in number of producers and small acreage landowners who are aware of insect, weed and disease infestations as they begin so they can make timely management decisions. Increased number of producers/ranch managers who implement range monitoring activities which lead to improvement in resource management strategies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	29

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rangeland comprises 70 percent of the land area in Montana and is found in every Montana county. In an economy where input costs of production on ranches are extremely high, ranches with livestock production enterprises rely heavily on rangelands to support their livelihood. As production costs and incidence of out-of-state landowners in Montana rises, there is an increased need for in-depth knowledge of rangeland ecology and management principles by public servants to assist landowners, land managers and producers in making important, efficient, and effective management decisions.

What has been done

The MSU Extension Range Management Institute was developed after the 2010 Extension Annual Conference where MSU county agents expressed need for more training and education on the subject. Currently, only 10 percent of Montana agents with agricultural responsibilities have academic training in rangeland ecology and management. The MSUE Range Management Institute provides field faculty with the hands-on, detailed information needed to be able to effectively provide range-related assistance to livestock producers and land managers. In 2014, 20 agents attended 11 sessions on topics including grazing animal behavior; grazing management systems; establishment and management of dryland and seeded pastures; and controlling native invasive plants on Montana rangelands.

Results

Participants of the Institute increased their foundational rangeland management knowledge from 73 percent on pre-tests to 84 percent on post-tests. Participants noted that the institute created useful dialogue among agents, where there had previously been some contention. Use of the knowledge gained from the seminar helps agents serve as a vector to help ranchers more

sustainably manage their native pasture resources and maintain their livelihoods by maximizing production in a low-input system. Helping ranchers be successful reduces land fragmentation which is helpful to overall landscape health and to preserving the heritage of rural communities in Montana. The MSUE Range Management Institute has increased the ability of county agents to assist ranchers, as well as to guide land managers and those who are new property owners in methods to take care of their land.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #4

1. Outcome Measures

Weed and Pest Control: Increase in number of applicators who are certified and employ safety precautions and risk management while using pesticides in the most environmentally and economically effective manner. Increased use of the Schutter Diagnostic Lab and specialists to identify pest, disease and plants in a timely manner, and provide appropriate recommendations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	9607

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The MSU Pesticide Education Program provides training and program licensing to approximately 6,100 private applicators across Montana. According to a Memorandum of Understanding between the Montana Department of Agriculture and MSU Extension, MSU Extension is responsible for managing the private applicator program. Without this license, producers could lose the ability to manage pest outbreaks thus causing significant revenue losses. The program also trains applicators in non-target toxicity, security of pesticides, and the safe and effective use

of pesticides to minimize negative environmental impacts and poisonings across the state.

What has been done

Delivered 40 presentations statewide and approved 350 private applicator program requests. Rewrote and updated many manuals and MontGuides. Worked closely with the Northern Cheyenne Reservation for extensive educational programming.

Results

As a result of pesticide applicator training, 40 percent more applicators understand how to calibrate their sprayers to prevent overspray and non-target toxicity while saving money from reduced waste. Additionally, there was a 50 percent increase in the number of applicators who indicated they would improve the storage of their chemicals since they better understood the potential danger to children and the unintended and mis-use that can occur through theft.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. Outcome Measures

Master Gardener/Horticulture: Increased number of certified Master Gardeners, increased amount of food donated to community partners and increased number of volunteer hours.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	34506

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a need for consumer horticulture and integrated pest management (IPM) information in the counties and reservations. During the growing season, calls to a county Extension office are over 50 percent horticulture- or IPM- related and in some counties the percent is upwards of 90

percent. Master Gardener curriculum, written and produced by the MSU Extension Horticulture professional staff, has a goal of educating the general public in horticulture, yard and garden maintenance and IPM. This education will benefit the agents as those successfully completing the course will educate others in the community. The Master Gardener program requires participants to volunteer as condition of becoming certified.

What has been done

The Master Gardener program has three levels of classes. Level 1 (16 hours of class/20 hours volunteer commitment) includes basic and intermediate curriculum, Level 2 (16 hours of class/30 hours volunteer commitment) includes a large emphasis on integrated pest management and Level 3 (30 hours of class and 40 hours of volunteer commitment) is a three-day intensive training held on the MSU campus in Bozeman. In addition, many counties offer horticulture and urban forestry classes and projects in a fashion that meets the direct needs of their communities. Agents in all counties respond to regular drop-ins, phone calls and emails related to horticulture questions and many offer weekly columns and/or set up booths at Farmer's markets to answer questions.

Results

The more Master Gardeners that are certified, the harder it gets to keep track of their work. Many continue to contribute long after they finish their classes. Agents reported that 481 certified Master Gardeners (at all 3 levels) completed 28,221 hours of volunteer work in 2014. Including Master Gardener hours, the total number of horticulture related volunteers in 2014 was reported at 660, with 30,042 hours contributed. At \$22/hour, this equates to \$660,924 in economic value to communities as a result of Extension horticulture programming. A sample of how these hours were served includes: developing community gardens, revitalizing farmer's markets, designing flower beds and landscaping for public spaces, working with children in greenhouses or after-school programs, growing food for food banks and community programs, planting trees and shrubs in boulevards and along city streets, visiting schools and organizations and sharing information and fresh produce.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
602	Business Management, Finance, and Taxation

Outcome #6

1. Outcome Measures

Junior Ag Loan Program: Youth who complete the finance and beef management training, successfully obtain a loan and use it for the purchase of livestock to begin or expand their herd.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	83

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is difficult for Native American youth and young adults to get started in the agricultural business. Families are unable to provide resources for the younger generation to purchase land or livestock to begin their businesses. Through an application, the Jr. Agriculture Loan Program and Rural Assistance Loan Program provide limited resources for purchase of livestock. For many, this is their start in establishing a viable business.

What has been done

Those receiving loans attended workshops focused on animal body condition scoring, animal production, and financial record keeping. All participants filled out and submitted a loan proposal to the Montana Department of Agriculture. Each applicant has individual consultations with professionals to establish a business plan, set goals, complete financial statements, establish record keeping systems and develop business agreements between appropriate parties, as well as caring for the animals.

Results

On the Blackfeet reservation 83 youth and two adults received certification through 4-H Livestock Quality Assurance Training. Thirty youth and their parents learned about the Jr. Agricultural program. Five successfully completed the process. These youth borrowed \$8500 each for the purchase of 34 bred cattle. The Rural Assistance Loan Program provided information and assistance to 28 adults. Ten successfully completed the process and collectively borrowed \$375,418 for the purchase of bred cattle and cost of operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
307	Animal Management Systems
311	Animal Diseases
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #7

1. Outcome Measures

2014 Farm Bill Education and Outreach.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2569

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Agricultural Act of 2014, commonly known as the Farm Bill, is very complex legislation that created questions and concerns by farmers, ranchers, bankers and others working in agriculture-related business regarding how it would impact them and their profitability. Major constituent groups including the Montana Grain Growers Association, the Montana Farm Bureau and the Montana Farmers Union asked MSU Extension to provide educational tools and assistance to help producers understand insurance options and other relevant features.

What has been done

MSU Extension economists created workshops, decision tools and a one-stop website to inform constituents of new programs authorized through the Farm Bill. The workshops focused on the price-loss coverage and agricultural-risk coverage and supplemental coverage offered through the USDA's Farm Service Agency and Risk Management agency through federal crop insurance providers. Workshops were held in 28 communities (three reservations) with 2,489 participants. Additional workshops were provided for 50 producers and 30 agency staff. The web page <http://www.montana.edu/farmbill/> has been utilized extensively. A series of workshops is planned on each reservation in 2015 to explore unique opportunities for Native American farmers.

Results

Pre- and post- surveys were distributed at each workshop and a telephone survey of a sample of participants is planned. The major impact will be determined by increased profitability that is recognized to be caused by the Farm Bill. Analysis of all this information is currently underway and initial data will be ready for the 2015 Annual Report. In addition, FRTEP agents have hosted workshops with Native American producers to share information and aid in decision-making. The website: <http://www.montana.edu/nafarmbill/> was created to address unique considerations for this population.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

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
- Other (High cost of fuel, fertilizer)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Montana production agriculture is largely dependent on small grains and livestock. MSU Extension is committed in every county and reservation across the state to providing the latest scientific-based research and technologies to Montana's people.

- Producers and agents who attended the Nutrition Livestock Conference and Livestock Forum reported overall satisfaction of 4.29 with 5 being very satisfied and 1 being very unsatisfied.
- Producers reported saving \$35/head, due to Extension provided information. This can vary widely depending on location, but with 2.6 million cows, this is a clear economic impact.
- Twenty graduates of the MSU Extension Sheep Shearing School are currently working with Montana-based sheering contractors.
- Schutter Lab identified unprecedented, severe outbreak of Fusarium head blight on dryland winter wheat and offered clear management recommendations to mitigate damage and save future crop losses.
- Schutter Lab research is leading the development of best practices for wheat curl mite.
- Extension professionals improved their knowledge of rangeland management principles from 73 percent pre-test to 84 percent post-test because of the Range Management Institute.
- Fifty percent more of participants in Private Pesticide Applicator training indicated they would store their chemicals more safely; and 40 percent more were able, after the class, to properly calibrate their sprayers.
- Volunteers through Extension horticulture programs including Master Gardeners contributed 30,242 hours in community service. This is an economic value of \$660,924 and represents 14.5 FTE.

- Five youth received Jr. Ag Loans totaling \$42,500 to purchase 34 bred cattle.
- Ten young Blackfeet borrowed a combined \$375,418 to purchase bred cattle and for the cost of operations on new ranches.

Key Items of Evaluation

Three new specialists started work in 2014 thanks to funding from the Montana legislature. These include a second beef specialist, a forage specialist and an economics specialist. The Schutter Diagnostic Lab received 1976 samples from 50 counties for plant pest identification and 542 samples for insect identification.

- Twenty-four submissions were state-listed noxious weeds; three have caused millions of dollars of damage in neighboring states. Of these, two were the first state records of highly invasive weeds: garlic mustard and medusahead. Garlic mustard was eradicated and a management plan is in place to prevent the further spread of the medusahead.
- Ten plants were submitted by clients to verify if they were safe to consume. Four would have caused serious illness and one could have caused death within a few hours.
- Nine of 15 samples submitted were positively identified as bed bugs. Hotels, landlords and tenants used the information to solve disputes.
- A Bostrichid beetle was diagnosed in lumber allowing the builder to qualify for compensation for treatment.
- Twenty-nine plants were submitted to see if they were toxic to livestock. Five were, thus preventing livestock harm.

The direct economic impact of the Schutter Diagnostic Lab is estimated at \$523/client or \$900,000 on over 3.6 million acres. The Schutter Lab performs tests and provides research and information to all areas of Extension agriculture, energy and natural resources programming.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Energy and Natural Resources

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%			
112	Watershed Protection and Management	10%			
121	Management of Range Resources	10%			
123	Management and Sustainability of Forest Resources	15%			
135	Aquatic and Terrestrial Wildlife	10%			
136	Conservation of Biological Diversity	10%			
605	Natural Resource and Environmental Economics	10%			
723	Hazards to Human Health and Safety	10%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	3.4	0.0	0.0	0.0
Actual Paid	1.3	0.0	0.0	0.0
Actual Volunteer	0.5	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
22577	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
37676	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

MSU Extension agents and specialists work one-on-one with producers, landowners and consumers to identify and address unique problems and solutions related to energy and natural resources. They conduct workshops, trainings, group discussions, field tours, demonstrations and site visits that address specific topics such as forest stewardship and water quality. MSU Extension partners with local and state associations and organizations that are concerned about natural resource issues. MSU Extension organized the Montana State University president's annual bus tour, this time going through the eastern part of the state and spending three days learning about Montana's energy and natural resources industries.

2. Brief description of the target audience

- Private forest land owners and public land managers
- Farmers/Ranchers/Ag Producers
- Small acreage Landowners
- Professional loggers/foresters/rangeland managers
- Environmental scientists
- Community leaders
- State economists

3. How was eXtension used?

Specialists regularly answer questions submitted via eXtension's "Ask an Expert." Agents and specialists advertise programs and utilize evaluation tools and methods from eXtension. The Livestock and Poultry Environmental Learning Center (COP) is a major collaborator and partner in state and national outreach on issues related to sustainable livestock systems and related water quality, waste water, clean water act regulation and other similar issues.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	8247	52871	367	8785

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

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	32	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Forestry: Number of private forest owners and managers who participate in and successfully complete meetings/workshops/clinics aimed at forest stewardship. Number of landowners and managers who have forest stewardship plans and actively implement them.

Year Actual
 2014 3515

Output #2

Output Measure

- Water Quality: Number of people attending Well Educated programs, who track water quality, regularly test their wells and receive information on how to help protect ground water resources. Number of people attending workshops and seminars to learn about watersheds and environmentally sustainable best practices.

Year Actual
 2014 3061

Output #3

Output Measure

- Energy Efficiency and Alternatives: Number of consumers, landowners and industry professionals utilizing resources created and/or consolidated by MSU Extension's E3A program. Number of people successfully completing E3A trainings.

Year	Actual
2014	11

Output #4

Output Measure

- Natural Resource Development: Number of workshops and resources provided to assist landowners with leasing of mineral and water rights and other legal issues related to development. Number of collaborations with industry, agriculture and community leaders in eastern Montana.

Year	Actual
2014	200

Output #5

Output Measure

- Rangeland health. Provide invasive plant education.

Year	Actual
2014	1600

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Forestry: Increased number of private forest owners who have and implement forest stewardship plans that allow them to continue to provide economic, environmental and social benefits to Montanans. Increased number of people who gain knowledge about forestry management and sustainability issues and contribute to forest health through personal responsibility.
2	Water Quality: Increased number of homeowners regularly testing their wells and managing them for safe consumption and environmental soundness. Increased number of Montanans who utilize online Extension and other resources related to watershed protection, drinking water safety and other water quality topics.
3	Energy Efficiency and Alternatives: Increased number of consumers accessing and utilizing E3A resources and training to improve efficiency, reduce environmental impacts and lower costs.
4	Natural Resource Development: Increased number of collaborations with partners in eastern Montana as a result of the Bakken Oil Field and related issues. Increase in the number of landowners who are educated and able to make sound decisions about their water and mineral rights.
5	Rangeland Health. Increase the knowledge and practices of landowners and managers related to invasive plants.

Outcome #1

1. Outcome Measures

Forestry: Increased number of private forest owners who have and implement forest stewardship plans that allow them to continue to provide economic, environmental and social benefits to Montanans. Increased number of people who gain knowledge about forestry management and sustainability issues and contribute to forest health through personal responsibility.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3484

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montana's wood products industry contributes \$500 million to Montana's economy annually. Private family lands (20% of forested acreage) supply 35-50% of the harvested wood. Federal lands make up 65% of Montana's forested acreage and state lands, less than 5%. To maintain forested landscapes for wood products, water quality, wildlife habitat and recreation, MSU Extension offers educational and training events for all landowners and managers. Extreme cold events, summer heat and severe winds present challenges for soil conservation; livestock well-being; farm and ranch heating and cooling costs; and range health across Montana. Windbreaks, shelterbelts and community trees are an important asset.

What has been done

Four week-long and five one-day workshops on Forest Stewardship were provided. More than five new publications with topics ranging from tree pruning to biomass markets were created and disbursed and a 28 page Montana Family Forest News magazine was mailed to 6,000+. Four one-day workshops on management, field operations and GPS mapping were provided for the Montana Logging Association. Two workshops were provided for local business owners. Nine half day workshops on windbreak establishment and renovation were offered across central and eastern Montana. Nine workshops were provided for school and early childhood program teachers. The annual week-long Montana Natural Resources Youth Camp was held for teens. Produced 240 Forestry Minutes for radio with listenership of 25,000.

Results

MSU Extension Forestry redesigned its web page generating 2848 users and 12,381 page views over 4250 sessions. Users downloaded 1,882 PDF files, 186 Word documents and 43 Power Point presentations. You-Tube videos were viewed 396 times over 7,144 minutes or 119 hours.

Nine mini-college presentations were viewed over an additional 501 minutes. 122 forest landowners completed more than 80 forest management plans for 12,281 acres with additional plans for another 4,000 acres still pending. Extensive education and outreach throughout 2014 resulted in long-term change in condition outcomes in Lewistown. A new Tree Board was established and a city ordinance passed to better manage boulevard trees. \$52,500 was raised through grants and donations. Twenty-seven fruit trees and 15 berry bushes were planted in public orchards, 26,000 tree seedlings were distributed to private landowners and 50 trees were planted in parks and other public areas. This illustrates how MSU Extension and local communities can partner to develop healthy urban forests.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

Water Quality: Increased number of homeowners regularly testing their wells and managing them for safe consumption and environmental soundness. Increased number of Montanans who utilize online Extension and other resources related to watershed protection, drinking water safety and other water quality topics.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3061

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montana has 60,000 miles of perennial streams which provide irrigation, drinking water and recreation. Approximately 45 percent of those streams are listed as impaired. Non-point sources of pollution cause most of the impairment which is an issue everyone plays a role in. To improve management, the general public must understand that their actions have an impact and make decisions that mitigate damage. Nitrate concentrations in groundwater are on the rise in many areas of Montana and in the Judith River watershed, 15 to 25 percent of shallow wells exceed

EPA drinking water standards. Private well owners with high nitrates are drinking contaminated water, buying bottled water or using reverse osmosis (\$1500/per unit) and farmers are losing millions of dollars in nitrogen loss.

What has been done

MSU Extension Water Quality (MSUEWQ) works with county partners and agencies to engage citizens in data collection to understand surface and groundwater issues. MSUEWQ works with eight watershed groups on surface water monitoring programs and more than 31 counties on groundwater testing through the Well Educated Program. In 2014 MSUEWQ began work with MSU Facilities Services to understand impacts on Mandeville Creek flowing through campus, piloting methods to be applied in other municipal watersheds. MSUEWQ is working with researchers from MSU and Utah State University to engage farmers of Judith Basin and Fergus counties in a participatory research project to better understand sources of nitrate in groundwater and farming practices effective at reducing leaching.

Results

The Madison Stream Team (MST) created by MSUEWQ and the local conservation district in 2010 has become a critical civic engagement partner for MT Dept. of Environmental Quality as they make plans for the watershed. MST is working toward piloting public monitoring methods initiated by MSUEWQ on Mandeville Creek through MSU Campus. In the Judith River watershed, research in the past two years has documented advantages of replacing fallow with pea. In this area, soil mineralization processes tend to produce as much available nitrate in the soil as added fertilizer. Since no fertilizer is added and no crops are using the available nitrogen, all the nitrate level growth in fallow fields comes from decomposing organic matter and nitrate conversion. Peas use soil nitrate before fixing their own from the atmosphere. When enough rainfall occurs to saturate soils, leaching occurs, moving nitrate from soil into groundwater. Fallow soils have higher moisture and nitrate levels and therefore the strongest potential for leaching. Project leaders are now working to broadly educate and inform locals about these findings, and to determine perceptions that might affect adoption of best practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
605	Natural Resource and Environmental Economics

Outcome #3

1. Outcome Measures

Energy Efficiency and Alternatives: Increased number of consumers accessing and utilizing E3A resources and training to improve efficiency, reduce environmental impacts and lower costs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

E3: Economy, Energy and the Environment is a coordinated federal and local technical assistance program that focuses on sustainability by providing custom, hands-on assessments of production processes. Montana is leading the nation by piloting the E3 framework with agricultural producers.

What has been done

Ten MSU Extension agents, who already have trusted relationships in their counties, are trained to complete assessments that identify opportunities and provide recommendations to reduce energy consumption, increase productivity, minimize carbon footprint and drive innovation. An E3 Assessment assists producers with maximizing energy savings and ensures eligibility for state/federal funding programs to help implement the recommendations. This program is early in its development so impacts aren't yet available.

Results

A website has been created for E3A, as well as for E3 in Montana Agriculture: www.E3A4U.info or www.e3.peakstoprairies.org. The goal is to ensure that by participating in E3, Montana's agricultural producers are in the best position possible to maximize available financial opportunities to implement E3 recommendations. This means that upon completion of the assessment, the producer will be eligible for USDA grant and loan opportunities, as well as other programs from E3 federal partners.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
723	Hazards to Human Health and Safety
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #4

1. Outcome Measures

Natural Resource Development: Increased number of collaborations with partners in eastern Montana as a result of the Bakken Oil Field and related issues. Increase in the number of landowners who are educated and able to make sound decisions about their water and mineral rights.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the Montana Department of Commerce, Montana has more potential for energy development from existing and untapped diversified sources than any other state. From coal and oil deposits, to wind farms and geothermal energy, potential energy resources play a vital role in Montana's future, just as natural resources have been a significant part of Montana's past. Montana State University strives to prepare a workforce that can meet these needs, as well as invested leaders who are committed to quality-of-life issues in changing communities.

What has been done

During June of 2014, MSU Extension coordinated a three-day bus tour through eastern Montana on behalf of Montana State University's president, Waded Cruzado. Participants on the Follow the Energy Tour included all of MSU's vice presidents, deans and senior leadership, a state senator and some alumni. They visited the Northern Cheyenne and Crow reservations (very different perspectives on energy development), as well as Baker, Glendive, Sidney, Miles City and all towns in between. Agents in each county shared their unique stories along the way. The group visited Denbury Resources, Nabors Well Servicing Yard, the Southern Ag Research Center and the CHS Refinery.

Results

Exact results are difficult to quantify, but the impact of having this influential group take an extended leave from campus to spend three days on a bus traveling 1000 miles to small towns, community gatherings, private businesses and cultural places including the Little Big Horn Battlefield was significant. They learned about housing and infrastructure challenges and strategies in anticipation of a potential boom from the Keystone pipeline. They heard passionate testimony about social issues in the Bakken from a panel of experts from schools, churches, and

community organizations in Sidney. They heard directly from a dozen Extension field faculty as they discussed the impacts of energy development on agriculture and education and about their needs and the opportunities that might be available for partnering in their communities. It was a comprehensive overview that may lead to solid collaborations, but gave senior MSU leadership a comprehensive view of Extension and the issues in the eastern part of Montana.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
723	Hazards to Human Health and Safety
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #5

1. Outcome Measures

Rangeland Health. Increase the knowledge and practices of landowners and managers related to invasive plants.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1600

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Invasive plants have become established on portions of range and wild lands throughout Montana. Many of these plants are listed as state and county noxious weeds, suggesting they have been deemed problematic by stakeholders, including the state Department of Agriculture, county weed districts, private producers and public land managers. The ecological impact of invasive plants includes altered structure, organization and function of rangeland plant communities. Economically, weeds impact rangeland more than all other pests combined, including billions of dollars spent on control and reduction in livestock; and wildlife habitat. Knowledge of weed biology and ecology can be used to implement sound integrated management methods that mediate these impacts.

What has been done

One specialist conducted 34 presentations all across Montana, held a three-day weed management workshop, answered over 200 phone calls and emails, appeared on Montana Ag

Live five times, distributed monthly weed posts, produced a Montana grass identification app for mobile devices and created two Extension publications. These efforts helped inform Extension agents and other professionals in all areas of the state. One-on-one interventions and local interactions occurred in all counties to connect the most current information with landowners and managers, potentially impacting the 70 percent of Montana's land that is designated as rangeland.

Results

Stakeholders who use Extension resources have an improved understanding of the biology, ecology and management of invasive plants on Montana range and wild lands and are better managers of their property, thus limiting ecological damage and decreasing monetary costs due to loss of forage and habitat. One project underway is investigating ways to refine re-vegetation of weed-infested rangeland through integrated management of two rangeland weeds: downy brome (cheatgrass) and tall buttercup. Through this project, Extension screened target and non-target effects of a grass seed pathogen that may be used to manage downy brome, and have determined that non-target effects can be mitigated with a fungicide treatment. The project has refined best practices for the application of the herbicide imazapic for controlling downy brome and increased knowledge of how soil moisture influences tall buttercup seedling success. These and related projects have resulted in two published journal articles, one thesis/dissertation, 10 conference papers and presentations at seven professional meetings.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
121	Management of Range Resources
135	Aquatic and Terrestrial Wildlife
605	Natural Resource and Environmental Economics

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

Natural resources are greatly impacted by factors beyond human control, leaving those who depend on these resources challenged to develop flexible management plans that ensure resiliency, viability and profitability.

Accelerated growth in eastern Montana presents many challenges and opportunities which

are and will continue to be affected by national and state government policies, funding for energy development issues, taxation policies and more. These rapid changes result in a great need for Extension to provide science-based resources and facilitate community and leadership development to mitigate political and social impacts.

Other external factors include the retirement of the housing specialist and director of the Montana Weatherization Center.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

This program was successful in meeting goals including:

- Increased awareness and knowledge of landowners, service providers and managers on core and emerging natural resource topics.
- Increased awareness by volunteers about their impact on local watersheds.
- Increased knowledge of homeowners who test and manage their wells

MSU Extension moved to an entirely new planning and reporting system during 2014. The system, along with extensive training, is improving planning, evaluation and reporting methods, though the transition has been a challenge.

Key Items of Evaluation

- The community of Lewistown raised \$52,500 for urban forestry projects. They planted 27 fruit trees, 15 berry bushes, and 50 trees in parks and boulevards and distributed 26,000 tree seedlings to private landowners.
- Research in the Judith River Basin is leading to better practices for limiting nitrate leaching that is causing millions of dollars in loss of nitrogen for farmers, and economic costs for residents who have to buy safe drinking water or reverse osmosis systems.
- A website has been created and results will be posted that show impacts of the E3: Economy, Energy and the Environment program.
- Research is underway to determine the best ways to refine re-vegetation of weed-infested rangeland through integrated management of downy brome (cheatgrass) and tall buttercup.

V(A). Planned Program (Summary)

Program # 3

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
608	Community Resource Planning and Development	25%			
723	Hazards to Human Health and Safety	25%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	25%			
805	Community Institutions and Social Services	25%			
Total		100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	5.2	0.0	0.0	0.0
Actual Paid	4.6	0.0	0.0	0.0
Actual Volunteer	6.2	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
93248	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
128672	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Meeting with community groups to determine community values, attitudes and vision on which to develop strategies and action plans.
- Partnering with local economic development entities, agencies, businesses/industry and organizations to implement goals and plans of action.
- Planning for potential disasters that may occur in a community, e.g., Extension Disaster Education Network (EDEN).
- Training for people serving on boards, councils and committees in both the public and private sectors.
- Culturally sensitive meetings with tribal leaders focused on community development.

2. Brief description of the target audience

- Business and Community Leaders
- Local Development Entities
- Chamber of Commerce Members
- Tourism Leadership - local/state
- County and City Government
- County Disaster Emergency Services Law Enforcement Emergency Response Coordinators
- Current community leadership/potential community leaders
- Landowners
- Adults/Youth serving on Boards
- Elected officials
- Tribal members

3. How was eXtension used?

eXtension was used to access USDA Food Preservation resources, the Extension Disaster Education Network and the Livestock and Poultry Environmental Learning Center. It was also used for distribution of general information including food fact sheets and bulletins, instructor evaluation forms and tools, and after-action reports.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10204	27360	667	1022

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

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	3	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Community Resource Development: Number of newly created Community Foundations or endowments or similar collaborations which keep wealth within the community to be used toward common strategic initiatives.

Year	Actual
2014	1245

Output #2

Output Measure

- Governance and Citizen Leadership: Number of elected and public officials and volunteers who complete training offered through Extension Community Development and the MSU Extension Local Government Center.

Year	Actual
2014	8220

Output #3

Output Measure

- Emergency/Disaster Planning and Management: Number of communities with current disaster response plans and the number of citizens and leaders who complete workshops/presentations and activities focused on disaster mitigation.

Year	Actual
2014	1133

Output #4

Output Measure

- Community Development with Tribal Populations: Number of collaborations with tribes focused around community development issues.

Year	Actual
2014	273

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Community Resource Development: Increased number of Community Foundations and endowments and increased participation of community members toward established community priorities.
2	Citizen Leadership and Good Governance: Increased number of people serving on boards, councils and/or committees who are prepared for the responsibilities/authorities of the entity.
3	Emergency/Disaster Planning and Management: Increased number of opportunities for communities to learn how to create/update clear disaster mitigation plans and effective and efficient leadership by Extension personnel during emergencies.
4	Community Development with Tribal Populations: Increased number of collaborations with tribes to address specific community development priorities.

Outcome #1

1. Outcome Measures

Community Resource Development: Increased number of Community Foundations and endowments and increased participation of community members toward established community priorities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1245

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A 2010 study by the Center for Rural Entrepreneurship revealed that across the United States, \$31 trillion in personal wealth will transfer between generations by 2055; the amount will be \$123 billion in Montana. Five percent of that \$123 billion would create a \$6 billion endowment, which would generate \$307 million each year for Montana. There are over 700 community foundations in the U.S. with over \$50 billion in permanently-endowed funds; providing almost \$4 billion in grants to communities each year. Montana currently has 75 community foundations. The Rural Community Development Initiative (RCDI) is a 3-year collaboration among MSU Extension, the Montana Community Foundation and the Anaconda Local Development Corporation; and funded by USDA Rural Development.

What has been done

Extension faculty are participating in train-the-trainer events to build capacity within existing local community foundations. Webinars, regional meetings and statewide conferences provide technical assistance in the areas of strategic planning, grant making, fundraising, endowment building, community collaboration, and leadership development. An educational video has been created that highlights the importance of giving back to communities to preserve the quality of life in Montana towns and rural communities. The first 16 local community foundations that complete the program requirements (100 hours of training, creation of a strategic plan and hosting a transfer of wealth event) within three years will receive a \$1,000 incentive grant from the Montana Community Foundation.

Results

The RCDI is designed to improve the economic stability of rural communities, businesses, residents, farmers and ranchers and enhance the quality of life in rural America. The program goal is to build the capacity of Montana's communities to establish or build community

foundations. This program will expect to generate increasing results through maturity and beyond. Agents currently working with local community foundations report results including:

- Wibaux (population 900) Endowment Foundation granted \$6,558.84 and included funding for a picnic shelter and an end-of-year trip for elementary school students completing an Accelerated Reader program.
- Community Foundation of Northern Rosebud County increased earnings to \$370,000 and granted \$25,500 to projects.
- Culbertson Area Community Foundation increased endowment by \$9,870 and granted \$3,400.

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 and Social Services

Outcome #2

1. Outcome Measures

Citizen Leadership and Good Governance: Increased number of people serving on boards, councils and/or committees who are prepared for the responsibilities/authorities of the entity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	8220

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Serving on public boards or as an elected official, whether at the county or municipal level, is a critical component of good citizenship. Yet, many people are ill-informed and unprepared for the significant challenges and responsibilities of public service. Elected officials, board members and the governing authorities that supervise them are vulnerable to bad press, poor public image and even litigation if statutory requirements or social norms are not met. There are hundreds of advisory and administrative boards around the state involving thousands of individuals. Coordinated training for elected officials and boards is critical to the success of local communities and to the perception of good governance.

What has been done

Montana's Constitution gives citizens of local jurisdictions the option to elect a study commission every 10 years to review the structure of their county or municipal government. In 1985, the Local Government Center was established at MSU to provide assistance to counties and municipalities and their study commissions. The LGC continues to provide that training and also goes far beyond, empowering local governments by providing professional training for over 6100 community officials and citizen boards every year.

Results

Per the Montana Constitution, in 2014 the LGC assisted with elections to determine whether local government commissions would be utilized. Eleven counties and 39 municipalities voted to review their existing form of government and provide recommendations. The LGC is providing training and support for these study commissions. Participants rated the first conference a 4.3 out of 5, with 5 being the best rating. One participant commented, "Thank you Well worth the drive and time spent. The handouts are invaluable, and will be critical to being able to conduct a viable and meaningful municipality review." Study Commission recommendations will be presented to voters in the next two years.

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 and Social Services

Outcome #3

1. Outcome Measures

Emergency/Disaster Planning and Management: Increased number of opportunities for communities to learn how to create/update clear disaster mitigation plans and effective and efficient leadership by Extension personnel during emergencies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1132

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The products and services that make up the bulk of Montana's economic productivity are primarily related to: agriculture, natural resources, food production/distribution, and cultural/historic sites and parks. Federal, state and local governments are required to plan for disasters and emergencies impacting these areas. Extension is a strategic partner in all phases of agro-emergency management, providing direct agribusiness security and emergency education, and facilitating workshops, exercises for communities, stakeholders and government agencies. MSU Extension also participates in the Extension Disaster Education Network National Program (EDEN).

What has been done

MSU Extension created a curriculum for community workshops to help local people think about how to protect and recover their local resources in emergencies. They have conducted eight extensive workshops serving 29 counties and two reservations and have more scheduled. Leaders report that the process of thinking strategically about how to evacuate an area of people and livestock, or where to secure unique resources in a specific emergency is beneficial. Extension partners have given presentations on vet/med and animal specific topics, invasive plant species, professional development, ag chemical safety and security, food safety and food-borne illness prevention programs and other opportunities to prepare for, prevent and then manage potential emergencies.

Results

As a result of Extension training, 13 annexes to County Emergency Operations Plans were updated and standard operating procedures and resource notebooks were prepared for six counties. Seventy-three hospital and pre-hospital personnel demonstrated skills required to respond to a mass casualty event, while twenty personnel demonstrated proficient incident command skills during an exercise that simulated recovery from a water contamination event. Twenty individuals demonstrated newly learned public information officer skills in front of a TV reporter. The group represented multiple counties and agencies and included several elected officials. At the annual EDEN meeting, 32 Extension personnel demonstrated, through a simulated emergency, the role Extension would play in incident command and emergency operations. An Animal Sheltering workshop was developed and has been tested in Kentucky and Montana. An exercise in Powder River County was scheduled the day after a livestock related emergency. The result was a new County Agricultural Planning Team tasked with formalizing Emergency Operation Procedures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
723	Hazards to Human Health and Safety
805	Community Institutions and Social Services

Outcome #4

1. Outcome Measures

Community Development with Tribal Populations: Increased number of collaborations with tribes to address specific community development priorities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	273

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Fort Belknap Reservation lies in a food desert, meaning fruits and vegetables are limited within a 10-mile radius. This affects the health, economic development and poverty level of reservation residents. The Fort Belknap Food Sustainability Project (FBFSP) will teach and mentor residents in producing their own homegrown and organic food. The White Clay and Nakado tribes historically lived off the land and preserved their food. The FBFSP will enrich the people through cultural practices including food preparation, gathering, gardening, preservation, drying and selling/trading.

What has been done

An assortment of classes was offered through the year, including: meat cutting and drying (participants learned how to cut the meat off a deer carcass and dry/jerky drying techniques); introduction to canning and canning safety; pickling cucumbers, peaches and beets, making apple filling; apple and plum jam; making choke cherry syrup; and gardening and nutrition. Extension worked with the Lodge Pole Red River Community Council to plan the Lodge Pole Trading Post. First Nations conducted a Food Sovereignty Assessment Workshop. Facebook was used to share information on food preservation and gardening.

Results

The Lodge Pole Community Garden was actively worked through weekly visits by community members. With mentoring from Extension and others, volunteers seed-started vegetable plants, tilled and prepared a 200x300ft organic garden and pumped water from Red Creek to produce a very productive garden. Volunteers harvested, preserved, processed, distributed and saved seeds from the produce and are already planning for next year. During the fall, Extension planned and implemented four successful Farmers' Markets. A total of nine vendors and 96 people participated. Results from the food sovereignty workshop were plentiful, as well, and will result in a change in outcome. The Island Mountain Development Cooperation wrote and was successful

in receiving a \$400,000 USDA grant to build the Trading Post, which will host future markets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
805	Community Institutions and Social Services

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Outcomes are affected by significant natural or other emergency/disasters. In areas around the Bakken Oil Fields, community development is facing challenges that are affected by legislation (state and federal), market trends and more. As federal funding becomes less secure, local communities will be required to set priorities and Extension will have a role in identifying and developing resources (financial and human) to be most effective.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension recently adopted a new planning and reporting system. Learning this new system has resulted in less quantitative data being reported. Training and revisions are planned for 2015 to mitigate and improve knowledge and actions in this regard.

MSU Extension Community Development programs have effectively impacted each community in Montana. From expanding Community Foundation opportunities, to creating sustainable food systems in food deserts, to planning and preparing for emergencies to educating community officials and board members, MSU Extension is actively working in communities throughout Montana to improve their vitality and the quality of life of residents.

Key Items of Evaluation

- Forty-nine counties and municipalities voted to review their existing forms of government. The Local Government Center is providing training and support.
- County Emergency Operations Plans were updated in 13 counties and standard operating procedure and resource notebooks were prepared for 6 counties.
- Thirty-two Extension personnel demonstrated ability to act as an incident command officer during a simulated emergency.
- An Animal Sheltering workshop was developed and has been tested in Kentucky and

Montana. The curriculum will be extended nationally following one more pilot.

- Volunteers in Fort Belknap worked with Extension to create a new community garden, learn culturally appropriate means for preserving and drying home-grown produce and wildlife and successfully completed and earned a USDA grant of \$400,000 to complete a Trading Post that will further facilitate food sustainability on the reservation.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Youth and Adult 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
307	Animal Management Systems	5%			
602	Business Management, Finance, and Taxation	5%			
801	Individual and Family Resource Management	25%			
802	Human Development and Family Well-Being	25%			
806	Youth Development	25%			
901	Program and Project Design, and Statistics	5%			
902	Administration of Projects and Programs	5%			
903	Communication, Education, and Information Delivery	5%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	0.0	0.0	0.0
Actual Paid	13.1	0.0	0.0	0.0
Actual Volunteer	120.0	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
417014	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
163643	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct Workshops and Clinics that provide active learning in subject matter related to projects
- Conduct/facilitate meetings that focus on facilitation and leadership skills
- Develop curriculum and supporting Teaching Tools for volunteers to use
- Provide training for youth and adult volunteers
- Partner with youth serving groups on state and local levels
- Provide/develop web based education and information access
- Facilitate small support groups for caregivers
- Develop printed and online resources

2. Brief description of the target audience

- Youth aged 5-19
- Parents of youth involved in 4-H
- Adult and youth volunteer leaders
- Professionals involved with youth development
- School administrators and teachers
- Military families
- Rural Montana families, landowners and business owners
- Caregivers
- Healthcare providers and services

3. How was eXtension used?

eXtension was used for online courses, response clickers during classes, evaluation tools, general resources, curriculum material, marketing material and to generate ideas.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10373	899725	18346	226210

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

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	17	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Youth competency development: 4-H programs and activities provide youth with training and support to foster the development of new skills and attributes.

Year	Actual
2014	195

Output #2

Output Measure

- Youth life skill development: 4-H Youth programs provide activities and projects to help youth build specific life skills.

Year	Actual
2014	18130

Output #3

Output Measure

- Leadership/Volunteer Development: Classes, seminars and resources for youth and adults who volunteer in youth programs to help them become better, more effective leaders.

Year	Actual
2014	3563

Output #4

Output Measure

- Military Family Partnerships: Positive interactions with military families through partnerships with other organizations and schools to access resources and support opportunities.

Year	Actual
2014	203

Output #5

Output Measure

- Parenting/Caregiving: Easily accessible classes and support groups for parents and caregivers.

Year	Actual
2014	663

Output #6

Output Measure

- Personal Finances: Easily accessible classes, training and resources that provide critical information related to personal finances.

Year	Actual
2014	5749

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Youth competency development: Increased number of youth participating in 4-H projects and activities and demonstrating increased knowledge and ability in specific competency areas (including but not limited to science, healthy living and citizenship.
2	Youth life skill development: Increased number of youth participating in 4-H activities and demonstrating increased knowledge and ability in specific life skill areas (including but not limited to teamwork, communication skills, public speaking, etc.)
3	Leadership/Volunteer Development: Increased number of youth and adults who have received leadership training and demonstrate increased knowledge and ability as a result of the training.
4	Military Family Partnerships: Increased interaction with military families resulting in increased capacity of families to access resources and support.
5	Parenting/Caregiving: Increased number of opportunities for parents and caregivers to access support and resources and increased knowledge and ability of participants as a result of those efforts.
6	Personal Finances: Increased number of participants in classes and training and increased knowledge and aptitude of those participants based on pre and post survey results.

Outcome #1

1. Outcome Measures

Youth competency development: Increased number of youth participating in 4-H projects and activities and demonstrating increased knowledge and ability in specific competency areas (including but not limited to science, healthy living and citizenship).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	195

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the 2010 National Assessment of Education Progress report, only 20 percent of American fourth graders, 17 percent of eighth graders and 12 percent of high school seniors performed at the proficiency level on the U.S. history assessment. Traditional instructional methodologies utilized in social studies education, specifically lecture, rote memory and textbook reading, is often uninspiring for students who see history as unimportant and irrelevant. The 4-H Western Heritage project uses an experiential approach that incorporates non-formal, active learning methodologies defined in the literature as appealing to youth. 4-H Youth Development programming has increasing citizenship as a primary goal.

What has been done

The 4-H Western Heritage Project originated in Montana in 2008 with five members. It has since grown to six states. To compete in the Championship, students must shoot old west era firearms, participate in a judged clothing evaluation interview and take a history test. The First Annual 4-H Western Heritage Conference and Invitational Shoot was held in Virginia City, Montana in July of 2014. Over 150 members, parents, and leaders from Montana, Missouri, Oregon, California, Vermont, and Alabama participated in three days of historical workshops and tours, capped by a championship competition for 4-H Western Heritage Project members. The curriculum for this program includes a project book, youth activity guide and a website companion site.

Results

Consistent with related literature, quantitative and qualitative pilot studies confirmed that members in the 4-H Western Heritage Project preferred an experiential, hands-on approach for learning history. The pilot studies indicated youth interest in learning American history increased significantly after participating in the 4-H Western Heritage Project for at least one year. Moderate effects, meaning project participation had moderate impacts, were calculated for the statements,

"I can see a connection between the past and today"; "I like visiting museums and historic sites"; and "I use the internet to find information about historic subjects I like". A large effect was recorded for the following: "I have a favorite history topic I want to look into"; "I feel I can learn history"; "I can relate to Old West lifestyles"; "I understand racial issues of the Frontier American West"; "I can relate to minority roles in the Frontier American West"; and "There is something new to learn about history." Two of the highest scores (over .7 was considered to mean the program had a large effect) at well over 1.0 were "History is important to me" and "History is 'real' to me."

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
806	Youth Development
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Youth life skill development: Increased number of youth participating in 4-H activities and demonstrating increased knowledge and ability in specific life skill areas (including but not limited to teamwork, communication skills, public speaking, etc.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	18130

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As Montana, the United States, and the world face increasingly broad issues in an ever-changing global world, youth must be better prepared to lead us into the future. Youth need strength in hard skills related to expanding career fields (agriculture, science, engineering, etc.). In addition, they need soft skills in areas like communication, finances, public speaking, leadership and civic engagement. Critical to the 4-H experience are trained, caring adults who are matched with youth to create partnerships that increase the competence, connection, confidence, compassion and character necessary for youth to become contributing members of society.

What has been done

Montana 4-H uses the resources of Montana State University and the U.S. Department of Agriculture to create environments for positive youth development through experiential education, learning-by-doing projects, club meetings, community service projects, after-school programs, school enrichment, camps, conferences and other events and activities. 4-H directly contributes to the development of youth through programs in communication and public speaking, goal setting, leadership and decision-making. MSU Extension actively recruits and trains caring adults to mentor youth.

Results

During 2014, 18,130 youth participated in Montana 4-H. Of these, 8428 were in long-term, intensive programs through organized clubs; 8401 participated in school enrichment programs; 448 were in mentoring programs and 701 were in after-school programming. Strong effort is made to involve under-served and American Indian and other minority youth. Of the total enrollment, 8.5 percent is American Indian (compared to 6.5 percent of Montana's total population). Nineteen percent of the total enrollment is non-white, compared to 10.5 percent of Montana's total population. Youth increased their confidence, vocabulary and ability to articulate their ideas. Girls indicated improved feelings of self-worth as measured by pre- and post- tests. Of those surveyed, 50 percent participate in demonstrations at the club, county or fair level and 100 percent of those improved their public speaking skills.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs

Outcome #3

1. Outcome Measures

Leadership/Volunteer Development: Increased number of youth and adults who have received leadership training and demonstrate increased knowledge and ability as a result of the training.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3563

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The volunteers and teen leaders in 4-H are vital to the implementation of quality programs. Adult and youth volunteers plan, organize and conduct meetings, events, workshops and projects. It is important that training opportunities and resources are available to help them be successful in these leadership roles. Volunteers who feel valued, supported and well-trained for their role are greater assets to the program and thus to youth participants. Research also suggests that adult workers who are trained in a developmental perspective have the strongest impact on positive youth development outcomes (Tierney, Grossman and Resch, 2000)

What has been done

Montana 4-H offers level one and level two Leader's College for volunteer leaders. Ambassador Training, Congress, Rec Lab, Teen Leadership Camp (TLC) and leadership forums provide leadership and developmental training for youth and adults. Agents provide local opportunities for youth to serve on county-wide committees, boards and councils.

Results

Directed youth leadership experiences increase self-efficacy, self-determination, communication, and problem-solving and are linked to higher student achievement, lower dropout rates, and better post school outcomes. A survey was given to leadership forum participants before and after programming. The instrument had 10 statements related to leadership. When responding to the statement, "I am a leader", 56 percent viewed themselves as leaders at the beginning, compared to 89 percent at the end. Before programming, 56 percent said they had a plan to reach their goals, and after 78 percent had a plan. All youth who participated in a five-county Teen Leadership Camp indicated they were more confident in their leadership style and in accepting leadership positions. Montana 4-H was supported by 3563 volunteers who accounted for 227,000+ service hours. This amounts to 118 FTE, an economic value of \$4,458,280.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Military Family Partnerships: Increased interaction with military families resulting in increased capacity of families to access resources and support.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	203

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Almost 7,000 Montana youth are members of military families. When National Guard, Army Reserve and other military parents living in civilian communities around Montana are mobilized, their kids suddenly have unique needs for special support services. These 'suddenly military' kids benefit by being connected with other youth in similar situations. MSU Extension partners extensively with schools, military support organizations and other services to meet this need.

What has been done

Camps and specific classes were offered through Operation Military Kids (OMK). These included a babysitting class and numerous camps. Camp Pee Wee was held in Lewis and Clark County for military kids aged 6-10. Two additional camps were provided in partnership with OMK Malmstrom Air Force Base and the Montana Air National Guard. The first focused on the 4-H horse curriculum and technology; and the second focused on Wilderness Survival skills. Fort Harrison and the Montana National Guard Family Programs organization provided 4-H programming at the Fort Harrison Day Camp, and an end-of-summer Family Resiliency Camp for families to attend together. Yellowstone County provided a week-long Saddle and Paddle Adventure Camp that included hiking, whitewater rafting and horseback riding.

Results

Youth in all camps and programs were able to connect with others in a similar situation and build trusting relationships with each other and caring adults. Ninety percent of Yellowstone campers reported they were better prepared to make decisions even when family members weren't around and one hundred percent said they realized that there were other people they could depend on when someone close to them was deployed. Youth also reported improvements in communication skills, self-sufficiency, self-confidence, ability to build relationships and greater resiliency. Skills including riding a horse, technology (through the military's Mobile Technology Lab), babysitting (many earned certificates), wilderness safety and equine safety were also learned.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
806	Youth Development

Outcome #5

1. Outcome Measures

Parenting/Caregiving: Increased number of opportunities for parents and caregivers to access support and resources and increased knowledge and ability of participants as a result of those efforts.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	663

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

By 2025, it is expected that more than a quarter of Montana's population will be over 65 years of age, ranking between third and fifth in the nation. Along with extended life expectancy comes a variety of chronic illnesses. Research studies find high rates of depression and anxiety among caregivers and increased vulnerability to health problems. According to AARP's 2012 "Across the States Report", Montana had 131,000 family caregivers providing services valued at \$1.39 million. The same study showed that 88 percent of these caregivers never get a break. It is not uncommon for the stress of caregiving to cause serious illness for the caregiver. In addition, more than 6,600 grandparents in Montana are responsible for the primary care of their grandchildren.

What has been done

Powerful Tools for Caregivers is an educational program that provides family caregivers with the skills and confidence to better care for themselves while caring for someone with a chronic illness. The Extension Powerful Tools class trains instructors to conduct six weekly 90-minute classes in communities across Montana to empower caregivers through self-help tools. The Montana Grandparents Raising Grandchildren (GRG) Project focuses on providing education, support and resources for grandparent-headed families. Additionally the project provides support group facilitator training and coordinates a network of 31 education/support groups across the state, including on the seven Indian Reservations. The project also provides resources to support the physical and emotional health of the caregiver.

Results

Seven new Powerful Tools for Caregivers leaders were trained. One hundred percent of participants who responded to surveys indicated they learned to write action plans and 58 percent said they would follow their plan; 75 percent said they learned to use relaxation tools; 66 percent learned to reduce stress by using "I" statements rather than "you" statements; and 58 percent

said they learned to ask for help, including calling family meetings to work through difficult situations. Because grandparents often care for their grandchildren informally, the state saves more than \$200,000/day in foster care payments (\$30/day x 6600 kids). Valuable partnerships with professionals and organizations have increased the number of facilitators and resources for families in this situation. More than 175 grandparents actively participate in support groups, 550 receive newsletters three times annually. The Montana GRG project has an active Facebook page, listserv and website to remain in close contact with participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #6

1. Outcome Measures

Personal Finances: Increased number of participants in classes and training and increased knowledge and aptitude of those participants based on pre and post survey results.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	5749

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montanans are interested in the wise use and handling of their financial resources, especially as it relates to passing property of all types from one generation to another. Statistics reveal that 70 percent of Montanans die without a will. Being informed on estate planning is the only way individuals/families can be sure their final wishes are realized. The state legislature continues to change intestate succession (dying without a will law) and contract laws that impact beneficiaries of real and personal property. In addition, Congress has made changes in the federal estate and gift tax laws that are termed permanent from 2013 forward. Education is needed to provide Montana families with information about the impact of state and federal laws on their situations.

What has been done

"Think You Know Who Gets Your Property When You Die? Think Again" estate planning sessions were presented in 70 communities. Over 3,800 Montanans took advantage of the opportunity to learn how their property passes if they die without a will, which seven out of 10 Montanans do. Another 367 Montanans learned about estate planning by attending live webinars. In addition, 1582 adults were reached via the Solid Finances Webinar Series. Participants learned topics such as how to protect themselves from identity theft; how to save money on healthcare expenses using Montana Medical Savings Accounts (MSAs), Flex Plans and health savings accounts; and how to evaluate whether retirement savings are on track.

Results

As a result of the meetings, 65 percent of the participants indicated they gained "lots of motivation" to take actions towards estate planning. After the session, 96 percent indicated they planned to establish payable on death designations and transfer on death registrations. Seventy-five percent of the participants did not realize Montana no longer has an inheritance tax. When asked, "What was the most important action they plan to take", participants indicated: discussing estate planning with a spouse (42%); reviewing or writing a will (31%), reviewing their property ownership titles (13%); and seeing an attorney (13%). Adults who actively manage their financial security are less likely to need public assistance; are able to protect themselves from scams and identity theft; and reduce their costs for medical care.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
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 Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MSU Extension recognizes that families come in a variety of configurations and offer resources and training to assist them in navigating all the various stages and changes that

occur across generations. Montanans desire resources to support youth and that help them to become better caregivers for the elderly and disabled friends and family. They seek resources for successfully parenting grandchildren and for managing their own aging process, including planning for transfer of wealth and managing personal finances. MSU Extension is fully engaged in meeting all these needs in every county and on every reservation for all Montanans across generations.

Because of our new planning and reporting database, we are collecting data on volunteers (other than 4-H and Master Gardener) for the first time. It is a tremendous benefit to the state for Extension to extend its reach by preparing competent, caring volunteers to provide expanded services. In 2014, Extension volunteers in youth and adult development contributed at least 250,000 hours, the equivalent of 120 full-time staff toward serving Montana.

Key Items of Evaluation

- Results from the 4-H Western Heritage Project confirm that an experiential, hands-on curriculum increases youth interest in learning history. This program has expanded to six states.
 - 18,130 youth participated in Montana 4-H, including 8428 in organized clubs and 8401 in school enrichment programs. 4-H youth have increased confidence, vocabulary and ability to articulate their idea and have improved feelings of self-worth after participating.
 - Leadership training at a five-county Teen Leadership Camp increased the percent of youth who viewed themselves as leaders from 56 percent pre-camp to 89 percent post-camp
 - Seven new Powerful Tools for Caregivers facilitators were trained.
 - Supporting grandparents in raising their grandchildren saves the state more than \$200,000/day (6600 kids x \$30/day for foster services).
 - After learning about estate planning, 96 percent of participants indicated they would establish payable on death designations and transfer on death designations. Forty-two percent indicated the most important action they planned to take after the training was to discuss estate planning with a spouse and 31 percent said they would write a will.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Healthy Living, Nutrition and 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
702	Requirements and Function of Nutrients and Other Food Components	10%			
703	Nutrition Education and Behavior	10%			
704	Nutrition and Hunger in the Population	20%			
724	Healthy Lifestyle	20%			
801	Individual and Family Resource Management	10%			
802	Human Development and Family Well-Being	20%			
805	Community Institutions and Social Services	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	2.6	0.0	0.0	0.0
Actual Paid	2.9	0.0	0.0	0.0
Actual Volunteer	3.4	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
94345	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
48053	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct train the trainer workshops
- Conduct workshops, seminars, meetings
- Facilitate meetings, discussion groups, focus groups
- Develop local and state partnerships
- Develop MontGuides (fact sheets), publications, website materials, video based materials
- Conduct web based, interactive training/education opportunities

2. Brief description of the target audience

- Low income adults
- Low income youth
- Adults that are FSP eligible
- Youth from FSP eligible households
- Teachers in the Montana School System
- Middle to older aged women, especially those living in rural areas
- Parents and youth living in rural areas
- Working people
- Elderly and shut-in people
- Reservation populations
- Healthy adults and children
- Unhealthy adults and children

3. How was eXtension used?

eXtension was used for newsletters, fact sheets, general resources and evaluation tools and reports.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4828	57608	6262	24260

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

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	6	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Healthy Lifestyles: Classes and resources, printed and online, are readily available to Montanans to gain knowledge related to physical activities, nutrition and the need for medical testing.

Year Actual
 2014 3062

Output #2

Output Measure

- Nutrition: Classes, publications and online resources are utilized to provide current information regarding nutrition, food resource management tools and other dietary needs directly to Montanans wherever they may be.

Year Actual
 2014 639

Output #3

Output Measure

- EFNEP/SNAP-Ed: The NEP curriculum is utilized to teach adults and youth who qualify a series of lessons related to nutrition and food resource management.

Year	Actual
2014	6548

Output #4

Output Measure

- Food Safety: Provide a number of train the trainer sessions for County Agents so they can offer food safety education classes and ServSafe training to local sanitarians school food service personnel, volunteers and others.

Year	Actual
2014	473

Output #5

Output Measure

- Food preservation: Provide training and updates to County Extension Agents so they can conduct trainings and answer questions for home preservers.

Year	Actual
2014	368

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Healthy Lifestyles: Increased participation in healthy lifestyle programming and health monitoring that leads to increased knowledge and healthy lifestyle choices.
2	Nutrition: Increased participation in nutrition classes and training and use of online and printed resources leading to changes in nutrition habits.
3	EFNEP/SNAP-ed: Increased participation by eligible citizens, particularly the elderly, leading to increased knowledge and use of knowledge related to nutrition and food resource management.
4	Food Safety: Increased participation in food safety classes, trainings and increased knowledge and utilization of concepts learned by participants.
5	Food preservation: Increased participation in food preservation classes and increased knowledge and utilization of concepts learned by participants.

Outcome #1

1. Outcome Measures

Healthy Lifestyles: Increased participation in healthy lifestyle programming and health monitoring that leads to increased knowledge and healthy lifestyle choices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3062

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Chronic diseases are Montana's leading cause of death, illness and disability and account for approximately 70 percent of healthcare costs. In Montana, heart disease is the leading cause of death and along with other diseases including diabetes, stroke, osteoporosis and hypertension, significantly impact quality of life. Research shows that healthy food choices, physical activity and early detection of symptoms can prevent or delay these diseases, saving millions in health care costs and preserving quality of life. Utilizing its network across the state and trusting relationships of agents in local communities, MSU Extension works with the Montana Department of Health and Human Services and other agencies to provide educational programming that fits the particular needs of each county.

What has been done

At least eight counties have active Strong Women Programs which provide structured exercise and nutrition information twice weekly for 10-12 weeks. Extension has partnered with the Montana Office of Rural Health and the MSU College of Nursing on a study that will identify specific value related to rural community health fairs that offer free or reduced-cost screenings, including blood and bone density tests. Many counties currently partner with others in their communities to offer some type of health fair. Extension is a partner in the Montana Arthritis Program (MAP) and numerous counties implement the Arthritis Foundation Exercise Program (AFEP) for their residents. Rural Extension faculty proactively partner to offer healthy living education activities to meet needs that span all generations.

Results

One hundred percent of participants who complete Strong Women or AFEP programs report reduced pain and stiffness, increased range of motion and balance and improved sleep. Eighty-five percent report a comprehensive understanding of nutrition that supports protecting and improving bone density. Qualitative improvements include: being able to open a jar, having

strength to climb stairs, ability to lift bag into overhead compartment on a plane, more comfort in living alone, improved dexa-scan readings that doctor attributed partially to classes and weight loss. Participants at one health fair reported an average savings of \$300/each in medical costs. Sixty percent said they learned at least one healthy lifestyle change that they intended to implement. One office where healthy-living program participants could receive free blood-pressure readings any time, reported a cumulative drop in blood pressure of 10 points through the year. Cumulative, quantitative data is not available at this time though efforts to improve data collection are under way.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
805	Community Institutions and Social Services

Outcome #2

1. Outcome Measures

Nutrition: Increased participation in nutrition classes and training and use of online and printed resources leading to changes in nutrition habits.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	639

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The USDA Map the Meal Gap report states that 20.9 percent of Montana's children struggle with hunger, meaning they regularly have concern over whether they will have enough to eat. Fifty-seven percent of Montana's children participated in the National School Lunch program and 13 percent receive SNAP benefits. However, the number of eligible families is much higher. The Montana Food Security Council and the Montana Food Bank Network recognize that access to

enough food, and to healthy food in particular, is complicated by great distances between grocery stores and the availability of fresh, healthy foods at many locations. Extension Nutrition Education Programs help Montana learn how to stretch their food dollars while meeting USDA dietary guidelines.

What has been done

Putting skills for meal planning, meal preparation and food safety into as many hands as possible is a critically important goal of Extension faculty throughout the state. Extension programming aims to ward off costly disease processes by improving nutrition, increasing activity and reducing negative behaviors (smoking, binge drinking) through community-wide health promotion. Through a variety of classes, Extension teaches all citizens (not only low-income) skills such as food preparation; meal planning; grocery shopping; knife handling; slow-cooker cooking; hazards of energy drinks and soda; utilizing lower-cost meat cuts; recipes for homegrown fruits and vegetables and more. Faculty teach concessionaires ways to provide more nutritional options during sporting and other events.

Results

Extension Nutrition Education programs created a comprehensive website to share resources with all Montanans. BuyEatLiveBetter.org is a one-stop shop that is being increasingly utilized and promoted. Many of the activities in this area are individual events that make up part of larger county plans. This makes it difficult to quantify outcomes from a statewide perspective. As an example, in 2014 in Teton County, 241 youth and adults directly participated in activities. Of those reporting, 88 percent ranked 5 on a 1-5 scale with 5 as high, that the skills gained were useful and that the classes increased confidence in being able to prepare nutritious and economical meals. Sixteen percent could list 10 tips for saving money in the family food budget and 41 percent had increased knowledge about proper temperature for storing and cooking meat products. In Cascade County, 160 City of Great Falls employees learned the importance of not skipping meals. They reported they were more likely to prepare snacks and have ready-to-go healthy foods for busy days. These things add up, and in Montana, Extension is working to quantify them through better evaluation and reporting.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
805	Community Institutions and Social Services

Outcome #3

1. Outcome Measures

EFNEP/SNAP-ed: Increased participation by eligible citizens, particularly the elderly, leading to increased knowledge and use of knowledge related to nutrition and food resource management.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	6548

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Food insecurity and hunger is prevalent in Montana. One in four individuals qualify for Supplemental Nutrition Assistance Program (SNAP) benefits. Seventy-six percent of rural households with children under 18 live in poverty. With great distances between rural communities, more than half the counties have food deserts, meaning residents must travel more than 10 miles to the nearest super market. Accessing affordable, healthy foods is a challenge and can result in obesity and health issues. Nutrition education helps Montanans learn how to stretch their food dollars while meeting USDA dietary guidelines.

What has been done

SNAP Education (SNAP-Ed) programs provide hands-on nutrition and physical activities designed to reduce food insecurity and help families lead a healthier lifestyle. Fifty adult nutrition series were offered, along with 100 classes for youth in Title One schools. Each series includes six classes for adults and 1st, 3rd and 5th grade children in 14 counties and six reservations. Fifty-five demonstrations were given through local agencies that support low-income residents. The Expanded Food and Nutrition Education Program (EFNEP) serves the very poor within Montana's three largest cities: Billings, Missoula and Great Falls. Eighty-one classes were provided at schools, and 553 adults received direct EFNEP training. Nutrition educators coordinate with other community resources to provide holistic support.

Results

SNAP-Ed post-series surveys indicated: 93% of adults made at least one positive change to improve their health; 39% were planning their meals ahead and 33% were comparison shopping for reported savings averaging \$28.90/month; 33% of youth increased their physical activity; 31% of 3rd and 5th graders switched to low-fat from whole milk; and 29% more children were eating breakfast daily. EFNEP post series surveys indicated: 94% of adults had made at least one positive lifestyle change; 32% were thoughtful about making healthier food choices for their

family; 79% were more careful about recommended hand-washing; 31% demonstrated improved ability to not run out of food before the end of the month (average savings from Extension training was \$21.10/month). Overall, 19% of EFNEP adults reported that they had adopted long-term healthy behaviors learned through the course of the program. 42% of EFNEP youth improved physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
805	Community Institutions and Social Services

Outcome #4

1. Outcome Measures

Food Safety: Increased participation in food safety classes, trainings and increased knowledge and utilization of concepts learned by participants.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	473

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Each year in America there are over 48 million documented cases of food-borne illness. The financial cost of food-borne illness is tremendous, including lost wages, health care and investigative costs. Basic food safety training on controlling time and temperature when handling food, and ensuring proper cleaning and sanitizing reduces the incidence of food-borne illness. Many food service groups, including school systems, Head Start and food banks, now require food safety training. Montanans have identified food safety training as having an important role in value added agriculture, community and economic development, workforce preparation, youth development, safe food operations for tourism, trade and health promotion.

What has been done

Three levels of training are provided. Level 1 training provides food service workers with the basic knowledge and skills to earn a certificate of completion for Basic Food Safety. Participants learn about safe food handling, controlling time and temperature, proper personal hygiene, preventing cross contamination and proper cleaning and sanitizing. Level 2 training provides a manager certification and uses an activity-based approach that covers the impact of safety on an operation, the flow of food through the operation and managing a food-safe operation. Level 3 Training provides train-the-trainer and other updates for agents, registered sanitarians and other food safety professional who are interested in providing food safety training.

Results

One hundred percent of those in Level 1 classes (316) passed the exam and received their Basic Food Safety certificate. One hundred percent demonstrated increased knowledge in understanding how to reduce food-borne illness incidences through safe food handling. Managers of school food banks toured the Cascade County Food Bank and learned how to better manage their school pantries. They went through their school shelves and removed outdated and dented cans and replaced them with new, acceptable cans donated by the main food bank. The school pantries are designed to alleviate child hunger through the provision of food to children and their families at school. Students manage the school pantries, learning valuable skills.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
805	Community Institutions and Social Services

Outcome #5

1. Outcome Measures

Food preservation: Increased participation in food preservation classes and increased knowledge and utilization of concepts learned by participants.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	368

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montana has an abundance of nutritious, seasonal, wild and homegrown foods. Sustainable food trends, the slow economy, and presence of food deserts across Montana have all increased interest in home food preservation as an important and popular activity. Recent national surveys reveal that a high percentage of home food processors are using practices that put them at high risk for food-borne illness and economic loss due to food spoilage. MSU Extension has long been recognized as a credible source for science-based recommendations for home food preservation. These trends bring renewed effort to provide enhanced programming opportunities.

What has been done

Extension utilizes many strategies for educating the public about safe food preservation. Every office responds to drop-in visitors, phone calls and emails asking individual questions. MontGuides, fact sheets and other resources are distributed during county fairs, farmers' markets, community events and during trainings. Classes covering topics such as canning; water bath canning; meat preserving and canning; pickling, freezing; drying and the science of food-borne illnesses and how to prevent them, are offered in communities all across the state. Extension faculty share information through newspaper articles, blogs, listservs, newsletters, radio spots, and social media and pressure-gauge testing at local hardware and grocery stores.

Results

Pre- and post- surveys are regularly completed during formal presentations. Of those completing surveys, 100 percent said they gained knowledge and resources; feel more confident in being able to safely preserve food than before the class; and recognize potential dangers from failure to use proper techniques. Sixty percent indicated they would use water bathing, jelly making and drying learned during class over the next year. Overall, classes received a rating of 4.86 on a scale of 5.0 with 5 being excellent and 1 being poor.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
805	Community Institutions 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
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

MSU Extension utilizes train-the-trainer methods to reach more people with limited resources. Data from classes taught by Extension volunteers is not always easy to access, though is clearly an impact of Extension work. MSU Extension is continuing to work with faculty on creating effective evaluation tools and improving methods for gathering qualitative outcomes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Evaluation tools most utilized were pre- and post-test surveys. MSU Extension continues to work on improving the skills of faculty related to conducting needs assessments, improving strategic planning, developing stronger evaluation tools, and maximizing data collection.

Key Items of Evaluation

- 100% of Strong Women and Arthritis Fitness Education Programs report reduced pain and stiffness and increased range of motion and balance
- 60% of health fair participants indicated that they would make at least one healthy lifestyle change as a result of the fair
 - \$300/participant savings was recognized by using free screenings at a health fair
 - 93% of SNAP-Ed adult participants made at least one positive change to improve their health
 - SNAP-Ed families saved an average of \$28.90/month on groceries
 - 94% of EFNEP adults reported making at least one positive lifestyle change
 - EFNEP adults were more careful about hand-washing (79%), better at not running out of food before the end of the month (31%) and were intentionally making healthier food choices (32%)
 - 100% of level 1 food safety participants (316) passed the test and received Basic Food Safety certificates
 - 100% of participants who reported indicated they gained knowledge and resources from Extension programs to more confidently and safely preserve food

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Housing and Built Environments

Reporting on this Program

Reason for not reporting

Outputs and Outcomes originally planned in this program area are found under Energy and Natural Resources; or Healthy Living, Nutrition and Food Safety. The purpose of programming around housing and built environments is to increase energy efficiency and to make healthier living conditions for Montana families. In addition, the Extension housing specialist retired leaving a leadership vacancy in the department that we are working to fill.

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	100%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	2.3	0.0	0.0	0.0
Actual Paid	0.0	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
0	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Produce guides on current energy topics.
 Conduct community meetings on energy topics
 Partner with agencies, local and tribal government, organizations and industry.
 Conduct meetings and seminars on methods for evaluating alternative energy opportunities for residential consumers and contractors.
 Conduct workshops on home energy for the building/remodeling industry.

2. Brief description of the target audience

Home owners and renters - energy consumers
 People interested in becoming involved with creating alternative energy opportunities
 Small businesses by SBA definition
 Building Industry
 Montana Building Industry Association
 Montana Department of Environmental Quality
 Montana AARP
 Human Resource Development Councils

3. How was eXtension used?

s

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	2	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Training residential consumers: Classes will be offered online and in person for consumers interested in reducing energy costs and consumption.

Year	Actual
2014	0

Output #2

Output Measure

- Training Professional Contractors: Training and professional certification will be offered for those in the construction and weatherization industries; giving professionals the latest science-based information and technologies available.

Year	Actual
2014	0

Output #3

Output Measure

- Housing and Environmental Quality: Training opportunities and up-to-date resources related to housing safety will be available for consumers and contractors.

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Training Residential Consumers: Consumers will demonstrate and utilize increased knowledge related to weatherization and making homes more energy efficient.
2	Training Professional Contractors: Building and weatherization professionals will have the knowledge and use the tools or materials needed to remodel or construct safe, energy efficient housing.
3	Housing and Environmental Quality: Increased number of homes cleared of mold and lead-based paint issues and more residents living in safe conditions.

Outcome #1

1. Outcome Measures

Training Residential Consumers: Consumers will demonstrate and utilize increased knowledge related to weatherization and making homes more energy efficient.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

Outcome #2

1. Outcome Measures

Training Professional Contractors: Building and weatherization professionals will have the knowledge and use the tools or materials needed to remodel or construct safe, energy efficient housing.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

Outcome #3

1. Outcome Measures

Housing and Environmental Quality: Increased number of homes cleared of mold and lead-based paint issues and more residents living in safe conditions.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
------	--------

2014

0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

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

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
6548	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 with 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.