

2013 Montana State University Extension Annual Report of Accomplishments and Results

Status: Accepted

Date Accepted: 09/16/2014

I. Report Overview

1. Executive Summary

We are pleased to provide the 2013 Extension Annual Report. MSU Extension is an active partner in engaging the people of Montana through meaningful collaborations that meet ever-changing needs across a diverse landscape. This report demonstrates the breadth and depth of Extension educational and outreach programming efforts designed carefully with stakeholders to fulfill the Land Grand mission of "taking the university to the people".

As we begin the celebration of Extension's centennial, we recognize that many of Extension's priorities have existed from the beginning ~ agriculture and natural resources, family and consumer sciences, community development and youth development all have deep roots. At the same time, the very nature of Extension has allowed it to work in ways that are direct and personal for individuals, communities and regions through unique, proactive programming. This report highlights both long-term, traditional programs, as well as innovative programs that are early in their development.

Montana is home to seven American Indian Reservations and twelve tribal nations. 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 of Montana's 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 differences and similarities.

As the goal statements 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 proud to share a sample of highlights with you.

This report is organized into eight program areas:

- Childhood Obesity, Nutrition and Healthy Lifestyles
- Youth Development
- Global Food Security and Hunger, Agricultural Sustainability and Profitability
- Family Issues, Resources and Environments
- Community and Economic Development
- Climate Change, Natural Resources and Environment
- Sustainable Energy
- Food Safety

MSU Extension has always maintained a close relationship with the MSU College of Agriculture and the Montana Agricultural Experiment Station (MAES) and worked extensively with them to create a new 2015 Combined Research and Extension Plan of Work. The opportunity to enhance this partnership and elevate agriculture in Montana, is valued and represents a clear commitment to the heritage of the state. The new plan also features components of MSU Extension work that are not directly related to agriculture.

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 that the impact of the dedicated and talented individuals who drive Extension are clear. We appreciate the opportunity to share these accomplishment with you.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	40.7	0.0	0.0	0.0
Actual	30.5	0.0	0.0	0.0

II. Merit Review Process

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

- External University Panel
- Expert Peer Review

2. Brief Explanation

The Merit Review Panel includes: Jim DeBree (33 years with MSU and Wyoming Extension, retired as Director of Wyoming Extension), Jim Knight (33 years with MSU and New Mexico Extension as a wildlife specialist and as Associate Director) and Charles Rust (retired agricultural economist and interim Director of MSU Extension). Knight and Rust have also had research appointments. They were selected for their understanding of Extension and the land-grant university. Each has had experiences that are important to developing a comprehensive review. A few comments follow.

Overall: I have found the educational programs to be conducted in a manner which achieved excellent results and that programs are relevant to the needs of Montanans. This report indicates many state priorities are being addressed and stakeholder input was conducted in an appropriate manner and encouraged involvement by traditional and nontraditional clientele.

Childhood Obesity, Nutrition and Healthy Lifestyles: This educational program makes effective use of the pre- and post- test surveys to measure educational changes. I would like to see this model expanded to other programs.

Youth Development: The changes in emphasis have empowered youth to better prepare themselves to enter adult life. The sample results show some very positive impacts especially with the Reservation programs, military youth programs and the BioScience project.

Global Food Security, Hunger, Ag Sustainability and Profitability: This one of the most comprehensive programs I have ever seen. You have covered everything from food production, applied research, management systems, economics, reproduction, marketing and financial planning.

Family Issues, Resources and Environments: It is encouraging to see Extension continue to develop support groups. With limited resources, it is imperative that you secure additional partnerships that allow you to make more efficient use of resources. Extension can serve a key role as the quarterback.

Community and Economic Development: The educational programs for public officials is outstanding. This is truly addressing a great need as the vast majority of local officials have little or no training. The suicide prevention program on the Fort Peck Reservation is truly cutting edge and desperately needed.

Climate Change-Natural Resources and Environment: From managing timber, rangelands, and

appropriate use of pesticides and other conservation practices, progress is being made in this program.

Sustainable Energy: Is it possible to team up with local agencies to address home energy practices? I know Extension is working with human resource councils for home heating and weatherization but rural areas still lack the personnel to provide on-site assistance.

Food Safety: I applaud Extension for utilizing one of the most effective educational tools at your disposal, "Train the Trainer". It is amazing how much farther you extend your educational effectiveness.

Summary: Extension continues to improve in the areas of: needs assessment, program planning, prioritizing, coalescing resources, implementing relevant programs, and conducting effective evaluations.

III. Stakeholder Input

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

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- 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 make sure that 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 function of towns, cities and counties. Agents are often members of community foundations and boards (such as county 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, dollar 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.

While less effective, radio, newsletters, newspapers 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 and some previous relationship with Extension. Recruitment from specific sectors such as health care, government agencies and community development are also targeted. County Extension agents and state specialists, Extension program leaders and regional department heads are asked to make recommendations for membership to MEAC. Those who are selected 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 non-traditional 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 (EFNEP, 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 2013 all subscribers and some past subscribers to the MSU Extension magazine, Big Sky Small Acres: Rural Living in Montana, were surveyed. The survey collected information about common needs of small acreage landowners and identified how this group most often accesses information. The results will formulate a plan for communicating more effectively with this group in the future.

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. These may be hard copy or electronic.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities
- 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
2364455	0	0	0

2. Totaled Actual dollars from Planned Programs Inputs				
Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	580719	0	0	0
Actual Matching	0	0	0	0
Actual All Other	1023270	0	0	0
Total Actual Expended	1603989	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	Childhood Obesity, Nutrition and Healthy Lifestyles
2	Youth Development
3	Global Food Security, Hunger, Ag Sustainability and Profitability
4	Family Issues, Resources and Environments
5	Community and Economic Development
6	Climate Change - Natural Resources and Environment
7	Sustainable Energy
8	Food Safety

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Childhood Obesity, Nutrition and Healthy Lifestyles

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	5%			
703	Nutrition Education and Behavior	45%			
724	Healthy Lifestyle	45%			
802	Human Development and Family Well-Being	5%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	2.6	0.0	0.0	0.0
Actual Paid Professional	2.8	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
42979	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
99672	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct train the trainer workshops
- Conduct workshops, seminars, meetings
- Conduct health fairs
- 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 and children under the age of 19
- Low income youth, ages 5-12
- 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

3. How was eXtension used?

Extension professionals and clientele use eXtension as a resource for specific information and educational materials.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10995	207497	6810	88809

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

Patent Applications Submitted

Year: 2013
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	1	0	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- EFNEP/FSNP: The NEP curriculum will be used to teach a series of 8-12 sessions to adults who are enrolled. The NEP youth curriculum will be used to teach 6-7 lessons to youth in workshops (after school, in school, summer camps, park programs). Develop and maintain local and state partnerships and collaborations.

Year	Actual
2013	8856

Output #2

Output Measure

- Strong Women: Certify 10 county agents so they are qualified to conduct strength training classes. Conduct two 14 week sessions in each county with qualified leaders to deliver the program.

Year	Actual
2013	2204

Output #3

Output Measure

- Healthy Lifestyles: To reach adult and youth audiences in rural communities with health fairs and school/community based programs that will provide medical screenings and classes. To track people who follow up with a physician or professional as a result of information gained at the health fair or similar activity. To assess numbers of people who participate in the worklife wellness program.

Year	Actual
2013	6445

Output #4

Output Measure

- 4-Health: Design and introduce curriculum targeted at childhood obesity and healthy lifestyles for youth ages 8-12. Provide training for parents on relevant information, effective parenting skills and strategies and a strong social support network that encourages them to solve everyday problems relating to the health and well-being of their pre-teen children.

Year	Actual
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2013

127

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	EFNEP/SNAP Ed: Number of adults gaining awareness and knowledge regarding the importance of: Healthy eating (more fruits and vegetables, whole grains) Increasing physical activity Food Safety practices Food resource management practices Food planning and preparation Number of youth increasing knowledge regarding the importance of: Eating a variety of foods Healthy eating Increased physical activity Food safety principles (hand washing) Number of adults: Improving the family diets by choosing/preparing healthier choices (more fruits/vegetable/whole grains). Improving food safety practices (storing and thawing foods properly) Improving food resource management practices (meal planning, shopping with list) Improving nutrition practices (reading food labels) Participants will: Decrease their risk of developing diet-related chronic disease, obesity, osteoporosis, cardiovascular disease and diabetes. Increase their confidence in the ability to manage food resources as well as other resources.
2	HEALTHY LIFESTYLES: As a result of having medical screenings at a health fair, participants will follow up with their physician or health professional. People will make better nutrition and food choices and engage in regular physical activity. Working people will participate in the worklife wellness programs as a way to manage stress and address risky behaviors.
3	STRONG WOMEN: Participants will improve physical measurements (maintaining or lowering BMI) and reducing resting heart rate. Amount of increase in weight resistance over the course of the program as measured by specific exercises (bicep curl) and amount of weight lifted (2# increasing to 5#).
4	4-HEALTH: Rural parents of 4-H 8-12 year olds will gain knowledge about healthy diets, physical activity and improved body image while enhancing their understanding, skills and potential roles as positive change agents for their pre-teen children. Rural 4-H families will have greater levels of knowledge related to nutrition, body image and physical activity. Parents will assist their pre-teens in making healthier choices and practicing healthier behaviors after participating in 4-Health programs. Rural families will have decreased rates of childhood obesity.

Outcome #1

1. Outcome Measures

EFNEP/SNAP Ed: Number of adults gaining awareness and knowledge regarding the importance of: Healthy eating (more fruits and vegetables, whole grains) Increasing physical activity Food Safety practices Food resource management practices Food planning and preparation Number of youth increasing knowledge regarding the importance of: Eating a variety of foods Healthy eating Increased physical activity Food safety principles (hand washing) Number of adults: Improving the family diets by choosing/preparing healthier choices (more fruits/vegetable/whole grains). Improving food safety practices (storing and thawing foods properly) Improving food resource management practices (meal planning, shopping with list) Improving nutrition practices (reading food labels) Participants will: Decrease their risk of developing diet-related chronic disease, obesity, osteoporosis, cardiovascular disease and diabetes. Increase their confidence in the ability to manage food resources as well as other resources.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	8856

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 SNAP benefits. Seventy-six percent of 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 ten miles to the nearest supermarket. 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-Ed: series of six nutrition education classes for adults and for 1st, 3rd and 5th grade children at Title One schools in 14 counties, including six reservations. EFNEP: series of seven nutrition education classes to adults and to children in Title One schools in Billings, Missoula and Great Falls. Grocery store tours: fifteen grocery tours were provided as an activity and recruitment tool in SNAP-Ed/EFNEP communities. Summer Feeding Program: Nutrition activities were provided at 56 sites statewide with more than 300 children attending.

Results

EFNEP: After completing the classes, 37 percent of participants increased their skills in comparison shopping and using a grocery list, and 32 percent indicated they could make their food budget last through the month. One participant shared, "I thought I could not afford to cook healthy foods for me and my grandchild. With new recipes and learning shopping tips, we now have healthier meals." SNAP-Ed adults, after the classes, increased their consumption of fruits and vegetables (35%), planned meals and comparison shopped (44%) and increased their physical activity level (34%). Youth decreased intake of sugary drinks (31%) and improved physical activity (38%).

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being

Outcome #2

1. Outcome Measures

HEALTHY LIFESTYLES: As a result of having medical screenings at a health fair, participants will follow up with their physician or health professional. People will make better nutrition and food choices and engage in regular physical activity. Working people will participate in the worklife wellness programs as a way to manage stress and address risky behaviors.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	6445

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 health care 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, along with physical activity and early detection of symptoms, can prevent or delay the onset of these diseases. Educational programs are needed to help rural people with limited access to health services and formal exercise programs, and often live in food deserts, learn how to reduce their health risks

and live healthy lifestyles.

What has been done

Working with the Montana Department of Health and Human Services as part of the Cardiovascular Health Program, 32 Extension offices implemented nutrition standards in their office and proposed standards at one worksite in their county. They had a blood pressure cuff and instructions for use in their office and advised clients with more than two high readings to see a physician. Six counties conducted Health Promotion programs, two counties conducted disease management and prevention programs, two conducted unique physical activity programs and five ran healthy living programs for specific employee groups. Two counties worked with organizations to increase access to healthy food and nutrition at meetings and concessions. Many healthy living projects were completed statewide.

Results

In Big Horn County, the Indian Health Service (IHS) worked with Extension to create and approve a new vending policy for staff to provide a good example for clients. In Choteau, healthy changes to concessions resulted in increased healthy snack sales and an increase in revenue. In the Arthritis Exercise Program utilized by two counties, 100 percent of participants reported implementing new healthy lifestyle changes, developing regular exercise habits, increasing knowledge about arthritis, improving balance and improved pain management. Two counties partnered with other community resources to offer Health Fairs with low-cost or free health screenings. Stillwater County Health Fair participants reported saving an average of more than \$500/each on healthcare costs. Health professionals in Fort Benton, Geraldine and Big Sandy reported a savings of more than \$250,000 by 471 health fair participants and indicated a number received important follow-up treatment for life threatening diseases.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

STRONG WOMEN: Participants will improve physical measurements (maintaining or lowering BMI) and reducing resting heart rate. Amount of increase in weight resistance over the course of the program as measured by specific exercises (bicep curl) and amount of weight lifted (2# increasing to 5#).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2204

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Women begin to show decline in muscle mass beginning at age 30. If this condition is not reversed, women will have reduced strength and other severe consequences as they age. The target audience for this program is middle and older age women in under-served areas and populations in Montana's rural settings, generally under-served by health and social services. Strong Women TM programs envision a diverse community of women who are fit, strong, and healthy; in turn these empowered women become agents of change for their families, communities and beyond.

What has been done

Strong Women TM programs are designed for women to increase muscle strength by strength training for 2-3 sessions per week. Counties offer the program to male and female adults throughout the year with new enrollee classes held every 12 weeks to introduce new people to the group. These trainings are directed by an Extension specialist who has been certified to teach Strong Women programs. In addition to improving muscle mass, strength training is shown to improve the psychological health of seniors by reducing depression and improving sleep and the classes are a valuable source of socialization as well.

Results

In 2013, 2,204 adults participated in the Strong Women TM program. Survey respondents reported an overall increase in stamina, strength, flexibility, balance and general health. All who reported, indicated they had greater ease in climbing stairs and lifting objects. One hundred percent who reported indicated the socialization of the class was a benefit. Twenty-five percent reported they reduced their overall salt intake and that they were sleeping better. One hundred percent reported an increase in knowledge about safe and effective physical activity. Long-term, broad-reaching impacts include an increase in the number of opportunities to access physical activity focused on strength training at home and in communities.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

4-HEALTH: Rural parents of 4-H 8-12 year olds will gain knowledge about healthy diets, physical activity and improved body image while enhancing their understanding, skills and potential roles as positive change agents for their pre-teen children. Rural 4-H families will have greater levels of knowledge related to nutrition, body image and physical activity. Parents will assist their pre-teens in making healthier choices and practicing healthier behaviors after participating in 4-Health programs. Rural families will have decreased rates of childhood obesity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	127

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The increasing prevalence of childhood weight problems and obesity is cause for alarm across the globe. Because they have poorer nutrition, more sedentary lifestyles and poorer body image, children today are worse off both physically and emotionally than children were just 25 years ago. The main goal of this program is to deliver a healthy lifestyle promotion and obesity prevention curriculum that will change the behavior of parents and preteen children, thereby enhancing the health of families and reducing the likelihood of children becoming overweight.

What has been done

The 4-Health Program has been disseminated across the state of Montana, with nine counties and two Native American reservations receiving facilitator training and program materials in 2013 through one in person training at the annual Montana Family and Consumer Science Agent Update, and one virtual training through Adobe Connect. Although initially funded by an Agriculture and Food Research Initiative NIFA grant, the 4-Health program has become a statewide plan of work through the Extension system, allowing agents to continue to offer it in their communities in future years, with free downloading of curricular materials available online at www.4health.org.

Results

Evaluation of the 4-Health curriculum in 2012 indicated that parents' behavior changed as a result of the program (77 percent made positive parenting-related changes, 73 percent indicated their family was working towards more positive body image, 94 percent made changes related to food and nutrition and 73 percent made changes related to a more physically active lifestyle). Six

months after completion of the program, 92.8 percent indicated they had continued with the positive changes. The success of the program enabled it to be included in 2013 in the Montana Office of Public Instruction's statewide nutrition education directory, and the Montana Rural Health Initiatives program listing. 4-Health has also recently been accepted through National 4-H as a Program of Distinction. State and national presentations on the use of program materials and related program research have been done regionally and across the United States.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Government Regulations
- Competing Programmatic Challenges

Brief Explanation

MSU Extension utilizes train-the-trainer methods to reach more people with limited resources and data from classes taught by Extension volunteers is not always easy to access. MSU Extension is in the process of enhancing the skills of agents and specialists by creating effective evaluation tools and methods for gathering participant demographics.

Funding, particularly related to EFNEP/SNAP-Ed caused concern during 2013, though the program continued and even expanded to include more summer programs.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Obesity, Nutrition and Healthy Lifestyle programs were successful in 2013. Evaluation tools most utilized were pre- and post-test surveys. MSU Extension is overhauling planning and evaluation processes and will institute a new training program in spring of 2014 to improve needs assessments, improve strategic planning, develop stronger evaluation tools, and maximize data collection. This year evaluations were often specific to individual projects and not easily summarized through qualitative data, but showed significant impact, nevertheless. Many of these results will lead to the adoption of similar efforts statewide.

- Operation Concession Intervention: Two agents and the 4-Health Coordinator teamed up to offer a webinar for 12 additional agents. 60% felt they had influence over concessions offered in their area and learned processes and ideas for improving their menus.
- Arthritis Exercise Program: Results from pre- to post-surveys included decreased depression and increased confidence. 100% reported implementing healthy lifestyle

changes, developing an exercise program, increasing knowledge, improving balance and improving pain management.

- Cascade County Wellness Program: County Commissioners worked with Extension to set up a planning/leadership committee to create a wellness program that included nutrition, financial wellness, growing and planting food and exercise. An average of 150 employees attended the monthly meetings and as a result received a discount on monthly insurance premiums.

- Richland County: Evaluation of nutrition presentations showed increased knowledge and intention to eat healthier. Parenting classes resulted in 100 percent of participants indicating they changed their mealtime behavior which led to the local Family Resource Center Director including nutrition education in her parenting program. Prenatal Health and Nutrition classes were highly rated and led to the creation of a new Health Education Coalition that prioritized prenatal health and a collaboration between the Richland County Health Department and Extension.

- Big Horn County: 18 county employees participated in a wellness program offering lunch and learn topics including nutrition, stress relief and simple exercises. Among them they lost over 200 pounds in three months. The County now prints wellness tips on pay stubs.

- Stillwater County Health and Wellness Fair: Twenty percent of participants who completed the exit survey indicated they saved \$500+ in potential doctor's visits, 25 developed an exercise routine that they continue to use on a daily or weekly basis and 60 percent indicated they made healthy lifestyle changes.

- Bi-annual county health fairs in Fort Benton, Big Sandy and Geraldine: 471 participants attended, saving \$250,000 on blood chemistry and other screening costs. In addition, 120 men and women received free bone density scans at a total savings of more than \$4,500. Local healthcare providers shared that the screenings helped them identify numerous life-threatening, yet treatable diseases and individuals reported that their health problems were discovered more quickly than if they waited to go to a doctor.

Key Items of Evaluation

EFNEP/SNAP-Ed: After completing the classes, 37 percent of participants increased their skills in comparison shopping and using a grocery list, and 32 percent indicated they could make their food budget last through the month. SNAP-Ed adults increased their consumption of fruits and vegetables (35%), planned meals and comparison shopped (44%) and increased their physical activity level (34%). Youth decreased intake of sugary drinks (31%) and improved physical activity (38%).

Healthy Living: Agents and specialists invested more than 12,000 hours in work directly impacting communities. From large health fairs with partners (data shows an average savings of \$500/person on various tests and scans), to small workplace grab and go lunches (where 100 percent of participants learn improved skills related to healthy living) to various newsletters and public service announcements, MSU Extension reached people across Montana, from the very young to the very old, with important health related services on a daily basis.

Strong Women TM: Participants reported an overall increase in stamina, strength, flexibility, balance and general health. All participants reported greater ease in climbing stairs and lifting objects. Socialization of the class was a benefit reported by all participants. A quarter reported that they reduced their overall salt intake and that they were sleeping better. All participants also reported an increase in knowledge about safe and effective physical activity. Long-term, broad-reaching impacts include an increase in the

number of opportunities to access physical activity focused on strength training at home and in communities.

4-Health: Evaluation of the 4-Health curriculum in 2012 indicated that parents' behavior changed as a result of the program (77 percent made positive parenting-related changes, 73 percent indicated their family was working towards more positive body image, 94 percent made changes related to food and nutrition and 73 percent made changes related to a more physically active lifestyle). Six months after completion of the program, 92.8 percent indicated they had continued with the positive changes. The success of the program enabled it to be included in 2013 in the Montana Office of Public Instruction's statewide nutrition education directory, and the Montana Rural Health Initiatives program listing. 4-Health has also recently been accepted through National 4-H as a Program of Distinction.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Youth Development

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
315	Animal Welfare/Well-Being and Protection	5%			
724	Healthy Lifestyle	10%			
801	Individual and Family Resource Management	5%			
802	Human Development and Family Well-Being	15%			
806	Youth Development	55%			
903	Communication, Education, and Information Delivery	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	0.0	0.0	0.0
Actual Paid Professional	8.2	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
210455	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
157183	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

2. Brief description of the target audience

- Youth ages 5-19
- Parents of 4-H youth
- Adult volunteers involved in Youth Development Work: 4-H program and other group volunteers.
- Professionals involved in Youth Development Work: 4-H program and other agencies, schools and organization professionals
 - School administrators and teachers
 - Youth who live on reservations and are between the ages of 5-21.
 - Youth ages 5-19 who have parents involved in the military.

3. How was eXtension used?

Agents and families involved in the 4-H program use eXtension as a resource in a vast range of situations and programs.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	17734	407631	32767	170272

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

Patent Applications Submitted

Year: 2013
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Life Skill Development: Statewide, 10,000 youth will be involved in 300 experiential learning activities including workshops, camps, clinics, seminars and club meetings.

Year	Actual
2013	26953

Output #2

Output Measure

- Leadership/Volunteer Development: An estimated 250 youth and 450 adults will be able to apply leadership skills and positive youth development practices in their roles of organizational, project or other leadership positions. Professional and volunteer staff in a majority of the counties will follow and adhere to established financial and audit guidelines. Teenage youth will exhibit leadership and communications skills within the 4-H program and at other times outside 4-H program.

Year	Actual
2013	4327

Output #3

Output Measure

- JUNIOR AGRICULTURE LOAN PROGRAM: Approximately 8 reservation youth will apply for the Montana Department of Agriculture - Junior Ag Loan Program to borrow money to purchase livestock to start their own herd. They will receive the necessary training to complete the process.

Year	Actual
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2013

36

Output #4

Output Measure

- Military Partnerships: The number of military youth participating in 4-H clubs, activities, and events will increase to 500. Military youth who participate in 4-H will demonstrate acquisition of or improvement in one or more of these areas: communication, problem-solving, decision-making, building peer groups, building strong family relationships, stress management and self care, resiliency and critical thinking.

Year	Actual
2013	2838

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	LIFE SKILL DEVELOPMENT Because of their involvement in 4-H projects, activities and events, 100% of 4-H members will show an increase in knowledge and skills and improved practices learned; 50% of 4-H members will re-enroll; 85% of the youth involved in experiential learning activities will gain knowledge and skills about the topic they have selected; (project subjects) youth will exhibit having more confidence, feeling more competent and self-assured and feeling more connected to their families and communities.
2	LEADERSHIP/VOLUNTEER DEVELOPMENT Eighty percent (80%) of Extension agents attending professional development opportunities will increase knowledge in volunteer management. Sixty percent (60%) of the 4-H volunteers participating in trainings will learn the duties of organizational leaders, project leaders and other leadership positions within the program so 4-H clubs and activities will use positive youth development practices. Sixty percent (60%) of the county 4-H Councils will learn and use the established financial management and review guidelines for handling public money. Eighty percent (80%) of participating youth will increase their self-perception of leadership development skills. Fifty percent (50%) of Extension professionals will adopt best management practices in the areas of volunteer identification, selection, orientation, training, utilization, recognition and evaluation. Fifty percent (50%) of volunteers attending trainings will adopt practices that support the 8 critical elements of 4-H education programs. Fifty percent (50%) of participating youth will apply developed practices of leadership. Agents and volunteers participating in professional development opportunities will provide a safe, positive environment for youth to gain life skills and meet developmental needs through participation in 4-H programs. Montanan's will have a more accurate and positive impression of the 4-H Youth Development Program.
3	JUNIOR AGRICULTURE LOAN PROGRAM Youth will complete the finance and beef management trainings needed to complete the application. Youth making application to borrow money will use it for the purchase of livestock so they can start or expand their herd.
4	Life Skill Development; Goal Setting: Through their involvement in 4-H: 50% of the members will participate in goal setting activities; know how to set goals, have identified accomplishments they have made that met their goal.
5	Life Skill Development; Science, Engineering and Technology: Participants will develop technology competencies in videography, robotics and GPS; develop science processing skills; use technology applications as tools to learn science through hands-on projects, activities and events.
6	Military Partnerships: Because of their involvement with 4-H, participants involved in Military 4-H clubs, activities or events will learn science, engineering and technology skills through projects, activities and events. Partnerships will be formed/enhanced with the military so youth can take part in 4-H programming

Outcome #1

1. Outcome Measures

LIFE SKILL DEVELOPMENT Because of their involvement in 4-H projects, activities and events, 100% of 4-H members will show an increase in knowledge and skills and improved practices learned; 50% of 4-H members will re-enroll; 85% of the youth involved in experiential learning activities will gain knowledge and skills about the topic they have selected; (project subjects) youth will exhibit having more confidence, feeling more competent and self-assured and feeling more connected to their families and communities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	26953

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, afterschool 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

In 2013, 26,953 youth participated in 4-H programs in Montana. Of this number, 10,245 youth were engaged in long-term, intensive programs through organized clubs. These youth participants increase subject matter knowledge and life skill development through project work. In ongoing evaluations of life skill development of 4-H club members, over 80% reported

increasing communication, listening, and observation skills, 92% reported understanding consequences of decisions and 98% indicated that they helped others when they needed something. In 2013, 765 youth participated in multi-day, overnight camping programs. In ongoing evaluations of camp life skills, 93% of campers tried new activities, 95% reported making positive contributions to the team, and 96% respected other campers. In 2013, over 400 youth participated in Montana 4-H Congress. This event focuses on leadership and life skill development. In an evaluation of the event, 77% reported increasing their teamwork and cooperation skills while 88% reported enhancing general life skills as a result of participation.

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 #2

1. Outcome Measures

LEADERSHIP/VOLUNTEER DEVELOPMENT Eighty percent (80%) of Extension agents attending professional development opportunities will increase knowledge in volunteer management. Sixty percent (60%) of the 4-H volunteers participating in trainings will learn the duties of organizational leaders, project leaders and other leadership positions within the program so 4-H clubs and activities will use positive youth development practices. Sixty percent (60%) of the county 4-H Councils will learn and use the established financial management and review guidelines for handling public money. Eighty percent (80%) of participating youth will increase their self-perception of leadership development skills. Fifty percent (50%) of Extension professionals will adopt best management practices in the areas of volunteer identification, selection, orientation, training, utilization, recognition and evaluation. Fifty percent (50%) of volunteers attending trainings will adopt practices that support the 8 critical elements of 4-H education programs. Fifty percent (50%) of participating youth will apply developed practices of leadership. Agents and volunteers participating in professional development opportunities will provide a safe, positive environment for youth to gain life skills and meet developmental needs through participation in 4-H programs. Montanan's will have a more accurate and positive impression of the 4-H Youth Development Program.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4327

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are 4,327 4-H volunteers (youth and adult) in Montana. Through their involvement, the Montana 4-H youth program is able to reach over 20,000 youth each year. These 4-H volunteers provide a positive learning environment for youth to build life skills. Training volunteers is essential to keep them up-to-date on 4-H youth development topics, provide them with opportunities to build their leadership skills and to network with one another. The 4-H Leader's College and Montana 4-H Leadership Forum are held annually as a statewide platform for 4-H volunteers to get together and learn new programs and ideas to take back to their counties. The 4-H staff and specialists provide additional training in disciplines such as shooting sports and animal quality assurance. 4-H mentoring programs are also important in expanding the positive impacts of 4-H to more people.

What has been done

The Leader's College Level 1 was attended by 25 adults and youth. The Montana 4-H Leadership Forum rotates around the state and is planned by agents and volunteers and 4-H Center staff. In 2013, the event was held over two days in Miles City with nearly 100 adults and youth attending. The 4-H Mentoring Partnership Program is active in several counties. In Gallatin County, there are 916 youth and 143 trained volunteers through partners such as Big Brothers/Big Sisters, United Way and Thrive. These youth/mentors completed six family-night outings with dinner and other bonding activities. Ravalli County's Mentoring program is the only staffed mentoring program in the county and recruits and partners youth and adults so they can improve academic performance and strengthen their families and social competencies through group activities and one-on-one mentoring.

Results

Attendees at the Leaders College Level 1 all reported that they gained knowledge and skills in the principles of youth development and the experiential learning model that they would use to develop a positive learning environment for youth in their club and county. Participants at the Leadership Forum chose workshops from a variety of topics and skills, enjoyed networking opportunities and were recognized for their work. Through the new skills and ideas learned, they indicated empowerment and felt prepared to positively impact their local clubs and committees. The Gallatin County Mentoring program was effective in bringing 4-H curriculum into a record number of after-school programs reaching hundreds of new youth between the ages of 5 and 14. The youth reported gains in project and life skills. Students in the Ravalli Mentoring program improved their academic performance, learned improved social competencies and strengthened family bonds.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

JUNIOR AGRICULTURE LOAN PROGRAM Youth will complete the finance and beef management trainings needed to complete the application. Youth making application to borrow money will use it for the purchase of livestock so they can start or expand their herd.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	36

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is difficult for Native American youth 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 process, the Jr. Agriculture Loan Program provides limited resources to youth for purchase of livestock. For many, this is their start in establishing a viable business.

What has been done

Youth receiving loans attended workshops focused on animal body condition scoring, animal production, and financial record keeping and statements. All participants are required to fill out and submit loan applications to the Montana Department of Agriculture Junior Agriculture Loan Program. They have individual consultations to establish a business plan, set goals, complete financial statements, establish record keeping systems and develop business agreements between appropriate parties.

Results

On the Fort Belknap reservation, 14 youth started Junior Agriculture Loan applications. Three have been accepted with 17 cows and 1 bull purchased for a combined loan total of \$25,500. Four loans are pending and seven are in the beginning stages of the application process. On the Blackfeet Reservation, four new Jr. Agriculture loans were approved for a total combined loan amount of \$34,000 to purchase a total of 28 bred cows. In addition, the Blackfeet Reservation approved 13 loans for 4-H and FFA market steers. Thirteen steers were purchased for a combined total of \$14,400. All but one of the loans has been fully repaid. The Blackfeet Reservation has participated in the Jr. Ag Loan program since 1993. During that time, 93 loans have been approved for a total of \$626,000 and 763 bred cows purchased. 84 loans have been repaid and 9 are still active.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
806	Youth Development

Outcome #4

1. Outcome Measures

Life Skill Development; Goal Setting: Through their involvement in 4-H: 50% of the members will participate in goal setting activities; know how to set goals, have identified accomplishments they have made that met their goal.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	20000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Preparing youth to take active roles in global society is of import to future success. Montana 4-H engages youth and adults across the state in partnerships with Montana State University Extension that promote positive youth development utilizing the collaborative strengths and resources of the United States Department of Agriculture, Montana State University, local communities, and citizens of Montana. Through these programs, youth develop subject matter competencies and life skills that prepare them to be actively engaged in their communities.

What has been done

Montana youth participate in the 4-H program through organized clubs, special interest programs, school curriculum enrichment, and camping programs. These programs focus on the eight critical elements of 4-H positive youth development to create environments where youth can develop competence, connection, confidence, compassion, and character leading to opportunities for contributions to their communities. Through involvement in projects, youth learn and develop goal setting skills. Youth set goals at the beginning of their project work, participate in educational activities to work towards their goals, monitor their progress along the way, and evaluate the process upon project completion. Popular 4-H projects include photography, dog, horse, livestock, shooting sports, food and nutrition, technology and engineering.

Results

Montana 4-H has focused on collecting data related to the life skill of goal setting in project work and activities by administering survey instruments over the past two years. Over 20,000 youth participate annually in 4-H programs, with more than 10,000 youth enrolled in community 4-H clubs. Through these programs, youth enroll in over 45,000 projects. Through enrollment in community club project work, youth gain knowledge and skills and demonstrate these abilities through presentations and exhibits. In an evaluation of organized club youth focused on goal setting: 94% responded positively to working hard to achieve their goals, 88% asked for help as needed, and 93% continue to try and achieve their goals if they are not successful on the first try.

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection
801	Individual and Family Resource Management
806	Youth Development

Outcome #5

1. Outcome Measures

Life Skill Development; Science, Engineering and Technology: Participants will develop technology competencies in videography, robotics and GPS; develop science processing skills; use technology applications as tools to learn science through hands-on projects, activities and events.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	110

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the US Chamber of Commerce, Montana is the fourth fastest growing state in science, technology, engineering and mathematics (STEM) careers (2011). Montana needs to keep pace with the growing need for STEM professionals. Montana middle and high school 4-H students, particularly those in rural areas, have limited, if any, exposure to scientists and therefore often lack awareness about STEM related careers and role models in the field. Large distances and inclement, unpredictable weather make it difficult for youth to visit Montana State University's campus, more than a 700 mile round trip from some areas of the state. The BioScience Montana project began in 2012 as a way to provide 4-H students in grades 8-11 an in-depth experiential science program and introduce them in a meaningful way to accomplished research scientists

and mentors. Additionally, many county programs focus on STEM in traditional and nontraditional 4-H programs.

What has been done

BioScience Montana uses three unique modules (neuroscience, infectious disease and metabolomics), presented by top scientists, to help youth explore science, design experiments and test their own hypotheses. Youth develop STEM-related career skills (leadership, creativity, critical thinking, problem solving); learn how to access and make sense of complex information; communicate and collaborate with others; and build their knowledge and understanding. The year-long program includes an intensive on-campus visit and ongoing work through virtual lab meetings, social media and a winter campus visit. In a survey done in the fall of 2013, 56% of county agents who responded were incorporating STEM into their programs. Of the respondents, 78% were incorporating STEM into nontraditional programs such as afterschool, school enrichment or special interest groups and 74% were using STEM at camps. Several counties also participated in National 4-H Youth Science Day.

Results

Youth completed surveys before and after the BioScience Montana program and a sample of the youth also participated in phone interviews with program evaluators. In the first class, 80% of the youth indicated they would attend a four-year college on the post-survey, compared with 60% on the pre-survey. Ninety percent of youth rated their interest in pursuing a science/technology career a 4 or 5 on the post-survey compared with 70% on the pre-survey. Specific to the science related content, the percent of students who felt they knew "a lot" about each module grew from pre to post test: Neuroscience from 27% to 80%, Infectious Disease from 35% to 90% and Metabolomics from 36% to 72%. Overall the program was rated highly by youth, scientists and mentors. One participant said, "My favorite part of the project was that I was given the tools to go out and research and discover things for myself. This was the first time I was really challenged to continue asking questions and find ways to answer them." Through county STEM programming, youth learned many life skills including problem solving, critical thinking, decision making, communication and goal setting in a variety of focus areas including, but not limited to, robotics, gardening, animal husbandry, food and nutrition, and photography.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

Military Partnerships: Because of their involvement with 4-H, participants involved in Military 4-H clubs, activities or events will learn science, engineering and technology skills through projects, activities and events. Partnerships will be formed/enhanced with the military so youth can take part in 4-H programming

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2838

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

While men and women are fighting for the freedom we enjoy, the families of the deployed need a support network. With many soldiers deploying multiple-times, it is necessary to have an organization that provides support for military families and meets the needs of military youth. To be most effective in Montana, Operation Military Kids (OMK) and other organizations work together with local 4-H and Extension to provide educational and outreach events, services and resources.

What has been done

In 2013, 18 adults were trained in youth development specific to military kids. Forty-eight 4-H clubs reached 475 military youth. Operation Military Kids offered 73 programs reaching 1620 youth and 643 adults. Five High Adventure Back Country Camps were offered to 55 teenagers. Twenty-seven youth attended overnight horse clinic camps designed for military kids. In Cascade, Lewis and Clark and Yellowstone counties, clubs, after-school programs, camps, activities and events were provided for military families.

Results

Military youth and their families received support on a regular basis as a result of MSU Extension and partners. Youth attending after school programs learned valuable skills related to robotics, healthy living, photography, babysitting, nutrition and more. Fifty-five teens attending camps received extensive programming in team building skills, problem-solving and survival while learning how to deal with stress related to a deployed parent and building their own confidence. In some programs youth learned about aero-science and built airplanes and rockets. Kids at the Malmstrom Air Force Base Youth Center completed Lego Robotics programs to learn patience, perseverance, helping others, sharing, completion of difficult Lego constructions and computer programming. Several students joined 4-H because of their experiences with OMK. Several youth from the Fort Peck Reservation indicated they planned to attend college in science and engineering fields as a result of their 4-H/Military partnership experiences.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

806	Youth Development
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

- 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

Youth development programming in Montana is built around the six C's: competence, character, caring, confidence, and connections leading to increased contribution. Native Americans make up 6.5% of Montana's population, and 23% of those are involved in 4-H. This reflects a deliberate effort to connect with underserved populations and excellent work on behalf of reservation (FRTEP) and county agents to reach out and provide resources to Native American youth.

The total 4-H Club membership in 2013 was 10,245. There were 4,857 youth who participated in 4-H special interest or short-term programs and 891 youth who participated in 4-H camping programs. Including youth who participated in school enrichment programs, individual study or mentoring, after-school programs using traditional 4-H curricula and instructional TV/video/Web programs, there were 26,953 (duplicates included) participants in 4-H youth activities. There were 14,410 participants in activities listed as "Citizenship" (civic engagement 1311, community/volunteer service 753, leadership and personal development 9227 and Communications and Expressive Arts 3119). An additional 25,356 participants engaged in activities in the category of "Science, Engineering and Technology" (Consumer and Family Science 1848, Biological Sciences 1225, Technology and Engineering 1213, Physical Sciences 3, Environmental Education /Earth Sciences 4091, Animals 16,387, Plant Science 589) and 5,465 in "Healthy Lifestyles" (Foods and Nutrition 5134, Health 87, Personal Safety 244).

MSU and MSU Extension are in the middle of a transition to a new reporting system that will better track and document outcomes and impacts, on a statewide basis. In addition, MSU Extension is at the beginning of a year-long training process that will advise and instruct agents and specialists on best practices for designing evaluation tools and needs assessments, planning strategically and writing, reporting and sharing impacts.

Key Items of Evaluation

These programs represent only a sample of work done in Montana 4-H and through other Extension Youth Programming.

- Flathead Reservation Extension Program: 190 youth have attended the Flathead Reservation Youth and Families with a Promise programs where they learn modern life skills and cultural skills in crafts, language, history, and native life skills. Youth are improving their grades in school and spending quality family time during organized family nights. Youth develop critical thinking skills and work together to serve others.
- 4-H Leaders College Level 1: 100 percent gained knowledge and skills in the principles of youth development and the experiential learning model.
- Leadership Forum: 100 percent indicated they were more empowered and prepared to positively impact their local clubs and committees.
- Through the Montana 4-H Mentoring Partnership, at risk youth in Ravalli and Gallatin Counties as well as on the Flathead Reservation take part in 4-H programs, mentoring, and family night out activities. In 2013, the program reached 395 at-risk youth ages 8-17 with an emphasis on the 10-14 age group and involved 126 adult mentors. Of the 395 participants, 335 reported noted behavioral changes in the area of social competency (85%).
- A survey completed in the fall of 2013 revealed that 56% of county agents who responded were incorporating STEM into their programs. Of the respondents 78% were incorporating STEM into non-traditional programs such as afterschool, school enrichment or special interest groups and 74% were using STEM at camps.
- Fort Belknap reservation: 14 Junior Agriculture Loan applications: 3 were accepted (17 cows and 1 bull with loan total of \$25,500), 4 are pending and 7 are in the early stages of the application process.
- Blackfeet Reservation: 4 Junior Agriculture Loans were approved (28 bred cows for a loan total of \$34,000). 13 loans for 4-H and FFA market steers were approved (13 steers for loan total of \$14,400). All but one of the loans has been fully repaid.
- Standard of Excellence Market Swine Program: the percent lean in hogs across Montana has risen from 47.67% in 1984 to 55.3% in 2013.
- BioScience Montana: 20 percent increase in number of students who planned to attend a four-year college from the pre-survey (60%) to post-survey (80%). 20 percent increase in number of students who planned to pursue science/technology related career from pre-survey (70%) to post-survey (90%). Increase in percent of students who felt they knew a lot about: neuroscience from pre-survey (27%) to post-survey (80%); about infectious disease from pre-survey (35%) to post-survey (90%) and metabolomics from pre-survey (36%) to post-survey (72%).
- Military youth and their families: at least 10 youth joined 4-H because of their experiences with Operation Military Kids, several youth from Fort Peck Reservation indicated they planned to attend college in science and engineering fields, 475 youth learned confidence, teambuilding and problem-solving in military clubs in three counties.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Global Food Security, Hunger, Ag Sustainability and Profitability

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	5%			
204	Plant Product Quality and Utility (Preharvest)	5%			
205	Plant Management Systems	5%			
211	Insects, Mites, and Other Arthropods Affecting Plants	5%			
213	Weeds Affecting Plants	5%			
215	Biological Control of Pests Affecting Plants	5%			
216	Integrated Pest Management Systems	5%			
301	Reproductive Performance of Animals	5%			
307	Animal Management Systems	5%			
308	Improved Animal Products (Before Harvest)	5%			
311	Animal Diseases	5%			
315	Animal Welfare/Well-Being and Protection	5%			
601	Economics of Agricultural Production and Farm Management	5%			
602	Business Management, Finance, and Taxation	5%			
603	Market Economics	5%			
604	Marketing and Distribution Practices	5%			
903	Communication, Education, and Information Delivery	20%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890

Plan	8.8	0.0	0.0	0.0
Actual Paid Professional	7.1	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
128912	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
247048	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Interactive video conferencing
- Workshops, clinics and seminars
- Newsletters, MontGuides, AgAlerts, articles and press releases
- Television (Montana PBS) and radio
- Demonstration sites associated with grazing of noxious weeds (leafy spurge and spotted knapweed)
- Field Days
- Research experiments
- Train-the-Trainer

2. Brief description of the target audience

- Livestock Producers, especially beef, swine and sheep
- Commodity Associations
- Land Managers/Owners (small and large)
- Weed Control Professionals
- Gardening Club members/people interested in gardening
- Small Grain Producers (Dry Land and Irrigated)

3. How was eXtension used?

Extension professionals and clientele are encouraged to use the eXtension system as a resource for locating information and educational materials related to specific questions and interests.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10703	133813	4192	4716

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

Year: 2013
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	44	0	44

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Montana Beef Program: Number of producers attending meetings/workshops/clinics etc about information to successfully balance rations at the least-cost formulation. Number of people attending beef cattle production presentations about nutrition, reproduction, quality assurance and other management topics.

Year	Actual
2013	1756

Output #2

Output Measure

- Montana Sheep Institute: Number of people attending workshops teaching innovative ways to using sheep. Number of projects being conducted with sheep grazing invasive plants Number of sheep producers involved with sheep grazing projects Number of landowners involved in sheep grazing projects Number of acres where weeds were controlled and documentation of vegetative composition trends. Number of wool growers involved in developing larger, more marketable clips Number of people attending workshop related to using "best practices" in sheep production and marketing of wool Number of people trained as shearing instructors. Number of people shearing their own sheep or being hired to shear for others.

Year	Actual
2013	799

Output #3

Output Measure

- Weed Control: Number of producers participating in workshops on weed control. Number of producers and landowners attending tours. Number of people attending meetings on pesticide control and applicator training. Number of people being recertified for pesticide use.

Year	Actual
2013	2773

Output #4

Output Measure

- Crops: Number of producers attending cropping systems workshops Number of producers adopting soil moisture conservation practices Number of producers adopting an annual crop rotation focused on profitability and soil health. Number of producers attending workshops on fertilization, reading soil test reports, pest management programs and field records. Number of people accessing web site for information on fertilizer and soils. Number of people attending field days, crop guides, research plot sites, and research center summaries. Number of people using pulse crops in the cropping rotation.

Year	Actual
2013	5800

Output #5

Output Measure

- Master Gardener: Number of people who become certified Master Gardeners.

Year	Actual
2013	767

Output #6

Output Measure

- Profitability: Number of producers attending farm management workshops including financial record guidelines and computer applications. Number of management plans developed including costs of production worksheets and summaries.

Year	Actual
2013	3000

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Montana Beef Program: Number of producers using Extension information to successfully balance rations for the least-cost formulation. Number of people using information gained at beef cattle production presentations about nutrition, reproduction, quality assurance and other management topics.
2	Montana Sheep Institute: Number of people who learned about using sheep to control invasive plants. Increased number of grazing management programs initiated and monitoring programs developed. Increase in the number of Wool Pools organized and wool delivery and marketing of consolidated pools implemented. Number of producers who developed plans to implement technology in their own production unit. (Ribeye program) Acres of infested landscape controlled by small ruminant grazing. Wool from smaller growers prepared and marketed on the national/international market. Producers improving production efficiency of their sheep enterprise. Number of people involved with shearing their own or others sheep.
3	Weed Control: Producers participating in workshops will be able to identify weeds and know how to control them. People attending meetings will understand pesticide control and appropriate applicator training. People will be recertified for pesticide use.
4	Master Gardener: Participants learn about plants and how to grow them successfully. Participants' volunteer hours of service to their communities in answering questions about horticultural issues.
5	Crops: Producers improve their understanding of nutrient cycling, weed control, variety selection and alternative crop possibilities. Producers will plant short water varieties when moisture conditions are low, plant sawfly resistant varieties to minimize losses, and forage varieties that will improve production. Pounds of fertilizer used in farming systems will be reduced. Producers will adopt weed, crop and forage management strategies that sustain agricultural crop production and lessen environmental damage. Farm operators who implement best practices will increase their profitability and enhance long-term sustainability.
6	Profitability: Ag producers gain knowledge associated with development of standard financial statements, and track machinery costs as well as fixed and variable costs associated with crop enterprises. Producers will adopt financial management programs that will provide financial statements for business analysis and bank lending requirements. Producers will analyze enterprise cost of production that will aid in cropping decisions, marketing, leasing, machinery and land purchases. Successful farm and ranch businesses provide stability and continuity for local communities, businesses and schools.

Outcome #1

1. Outcome Measures

Montana Beef Program: Number of producers using Extension information to successfully balance rations for the least-cost formulation. Number of people using information gained at beef cattle production presentations about nutrition, reproduction, quality assurance and other management topics.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1756

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 beef cattle production. Cattle producers are seeking information on how to adapt to changing markets and remain in business. The Steer of Merit program is a method for county fair market beef exhibitors, parents, volunteers, beef cattle producers and other industry members to learn about carcass characteristics.

What has been done

The Extension beef cattle specialist presented to 1365 beef cattle industry stakeholders in Montana via 43 formal beef production and management programs. Topics included harvested forage utilization, mineral nutrition, ration balancing, genetics and selection, a systems approach to beef cow nutrition and reproduction, carcass grading, cow condition impacts on reproduction and nutrition, drought strategies, and forage analyses as risk management. More than 300 phone calls and emails were answered addressing individual questions. Ration-balancing software training was delivered to 23 county agents in four locations. The specialist conducted three workshops about market beef selection, feeding and carcass characteristics for youth, parents, agents and livestock producers. 916 beef carcass entries from county fairs were collected and reviewed. The information for Steer of Merit qualifying steers was sent to the Montana Stockgrowers Association (MSGA). Three workshops covering market beef selection, feeding and carcass characteristics were conducted for youth, parents, agents and livestock producers.

Results

Twenty producers followed up after formal programming to learn more about forage nutrient analysis and ration balancing. Every penny saved on a ration results in a \$1.50 per cow savings for a 5-month winter/spring feeding period. In a mid-size 250-300 cow herd, this would result in a \$375-\$450 of feed cost savings. There were 111 carcass division and 24 ultrasound division qualifiers among 916 total entries. The Top 5 Steer of Merit awards in the carcass and ultrasound divisions were presented at the annual MSGA Convention. Students and parents involved in the program gained knowledge related to the basics of carcass grading and how those measures influence the Steer of Merit designation. Students in 4-H Market Quality Assurance workshops reported increased knowledge related to raising animals in proper conditions, proper feeding, consumer satisfaction, how to minimize the potential for animal disease, methods of treating sick animals, appropriate injection sites for treatment and the importance of record-keeping.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Montana Sheep Institute: Number of people who learned about using sheep to control invasive plants. Increased number of grazing management programs initiated and monitoring programs developed. Increase in the number of Wool Pools organized and wool delivery and marketing of consolidated pools implemented. Number of producers who developed plans to implement technology in their own production unit. (Ribeye program) Acres of infested landscape controlled by small ruminant grazing. Wool from smaller growers prepared and marketed on the national/international market. Producers improving production efficiency of their sheep enterprise. Number of people involved with shearing their own or others sheep.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	799

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The sheep industry has identified a need for skilled trained sheep shearers to support the industry and promote the growth of the industry. Montana experienced a 1% growth in sheep numbers in 2013 leading to a growing need for shearing education and training of those wishing to work for hire as well as those individuals needing to learn the skill in order to manage their own sheep. Since 2000, the MSU Shearing School is an ongoing program that has addressed the continuing need for shearers.

What has been done

The efforts to address the shearing shortage can be divided into three areas, promotion, education and support. To promote the opportunity to become involved in sheep shearing, as well as provide the public with exposure to the process, Extension hosts the annual Miles City Bucking Horse Sale Sheep Shearing Contest and the Speed Shear event in conjunction with the Montana Woolgrowers convention. Formal sheep shearing schools are offered in Montana at the Red Bluff Research Station and in North Dakota at Hettinger. Market Quality Assurance classes are required for youth taking market sheep projects.

Results

An MSU Shearing School survey indicated that thirty-one graduates plan to seek shearing for hire during the spring 2014 season. In Montana, shearers get paid \$2.75 per head for shearing. In 2013, the estimated revenue earned by graduates was \$87,375. In Montana 157 youth earned Certified Lamb Certificates and 137 youth received Ultrasound Lamb certificates.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Weed Control: Producers participating in workshops will be able to identify weeds and know how to control them. People attending meetings will understand pesticide control and appropriate applicator training. People will be recertified for pesticide use.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2773

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

New potentially invasive plants are being moved around the western U.S. and could become established in Montana. Economic analysis indicates that for every dollar spent in prevention and early detection of invasive plants, 17 dollars are saved that would be spent on management of large-scale infestations had the species gone unchecked. This program informs Montana residents about new plant invaders and what they should do if/when they find a new invader. The Early Detection and Rapid Response Program is applicable and available to all Montana citizens, but emphasis has been placed on reaching out to managers and users of public lands. The integrated management of agricultural weeds continues to evolve as costs associated with management increase and consumer attitudes toward the products they purchase change. This continues to be a primary focus of MSU Extension.

What has been done

Five programs on the identification of new invaders and two visits to special interest/recreation groups to discuss how to handle invaders were conducted in 2013. At least 23 Extension/outreach presentations related to agricultural weed management in eight locations across Montana were presented to over 1751 participants. Specialists coordinated the Montana USDA Western Sustainable Agriculture Research and Education (WSARE) Professional Development Program which included topics such as cropping system diversification, ecologically-based pest management and farmer networks. Specialists organized the 10th Annual Crop and Weed Field Day at the MSU Post Farm which had 70 participants. During 2013, the Cropland Weed Management Website, www.ipm.montana.edu/cropweeds was fully re-designed, as was the Montana IPM Center web site.

Results

Participants in Extension programming are becoming more aware of the importance of prevention, including early detection and rapid response, for managing invasive plants on range and wild lands. In addition, participants are increasing their ability to identify invasive plants that are currently not established in Montana. For example, one presentation on new invaders that was delivered to county weed district coordinators resulted in an improvement between pre- and post- test scores by about 33 percent. Many workshop participants (84%) indicate they have begun to implement control measures or changed their control measures due to programming. Evaluations of agricultural weed presentations indicated that the presentations were thought provoking, easy to understand, and of good educational value. Programming helped increase awareness on management practices to prevent or delay the selection of herbicide resistance in Montana, diminish the spread and impact of cheatgrass (*Bromus tectorum*) and develop integrated weed management programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management
903	Communication, Education, and Information Delivery

Outcome #4

1. Outcome Measures

Master Gardener: Participants learn about plants and how to grow them successfully. Participants' volunteer hours of service to their communities in answering questions about horticultural issues.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	767

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a need for consumer horticulture and IPM information in the counties and reservations. During the growing season the calls to a county Extension office are over 50 percent horticulture

or integrated pest management (IPM) related and in some counties the percentage 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 that participants volunteer as part of becoming certified.

What has been done

Three levels of classes are offered: Level 1 (16 hours of class time/20 hours volunteer commitment) includes basic and intermediate curriculum, Level 2 (16 hours of class time/30 hours volunteer commitment) includes a large emphasis on integrated pest management and Level 3 (30 hours class time and 40 hours volunteer commitment) is a three day intensive training held on the campus of MSU in Bozeman.

Results

The Master Gardener program provided 13,480 student hours of training for 616 participants, which led to 156 Level 1 certifications, 35 Level 2 certifications and eight Level 3 certifications. Volunteer hours among participants totaled 12,846, equating to over \$284,000. In fall of 2013, a survey of all prior participants of the Master Gardener classes in Gallatin County was completed. The survey found that before participating in the Master Gardener program, 77 percent had never attended an MSU Extension program. After attending the Master Gardener program, 47 percent said they attended at least one additional Extension program and 100 percent said they would recommend Extension programs to others. In Fergus County, Master Gardeners helped the Boys and Girls Club grow over 15 percent of the vegetables they used in their summer lunch program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
602	Business Management, Finance, and Taxation
603	Market Economics
604	Marketing and Distribution Practices
903	Communication, Education, and Information Delivery

Outcome #5

1. Outcome Measures

Crops: Producers improve their understanding of nutrient cycling, weed control, variety selection and alternative crop possibilities. Producers will plant short water varieties when moisture conditions are low, plant sawfly resistant varieties to minimize losses, and forage varieties that will improve production. Pounds of fertilizer used in farming systems will be reduced. Producers will adopt weed, crop and forage management strategies that sustain agricultural crop production and lessen environmental damage. Farm operators who implement best practices will increase their 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
2013	5800

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Plant diseases often reduce crop yield and quality. MSU Extension specialists work to educate growers, county agents, industry and academic personnel about plant diseases in order to mitigate plant disease threats in cropping systems. This includes educating people on proper identification and disease management using an integrated strategy and research that is focused on disease threats to cropping systems. The Schutter Plant Disease Diagnostic Laboratory is an excellent diagnostic resource and facilitates MSU's involvement in regional (Great Plains Diagnostic Network) and national (National Plant Diagnostic Network) efforts to identify and communicate about plant disease threats, including threats to food security.

What has been done

One specialist educated 2319 producers, county agents, and other professionals in 29 presentations. She educated 3,000 children and parents at the MSU Science and Engineering Festival and 100 stakeholders during Ag Days at MSU. Approximately 80,000 viewers saw eight television episodes on Montana Ag Live on Montana PBS. The specialist wrote an article in the Western Farmers Stockman magazine, reaching 30,000 readers, conducted two radio interviews about crop disease and distributed 13 AgAlerts (downloaded 5,716 times). She created a 2014 Wheat Pest Calendar that was distributed to 5000 growers and produce a new "Montana Cool-Season Pulse Production Guide".

Results

Recognizing the value of the Schutter Diagnostic Lab to the state, the specialist worked with the Office of the Commissioner of Higher Education and was successful in securing \$200,000 in state funding for the lab. A study of 119 participants in six counties, representing 47,500 acres and \$37.7 million in revenue, showed strong interest by producers to participate in on-farm research. The majority (70%) indicated they would be willing to devote 1-5% of their revenue to on-farm research in the future. Using 3% for the whole, that's potentially \$1.1 million in on-farm research in-kind donations. Failures of Priaxor fungicide were noted on Ascochyta blight of chickpea in 2013. An isolate from a grower in northern Montana was found resistant to Headline, a component of Priaxor. Advice from the MSU Extension Plant Pathologist to spray the crop with Proline saved the chickpea crop. One grower yielded 1700 lb/A on 580A, a gross profit of \$385,000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
602	Business Management, Finance, and Taxation
603	Market Economics
604	Marketing and Distribution Practices
903	Communication, Education, and Information Delivery

Outcome #6

1. Outcome Measures

Profitability: Ag producers gain knowledge associated with development of standard financial statements, and track machinery costs as well as fixed and variable costs associated with crop enterprises. Producers will adopt financial management programs that will provide financial statements for business analysis and bank lending requirements. Producers will analyze enterprise cost of production that will aid in cropping decisions, marketing, leasing, machinery and land purchases. Successful farm and ranch businesses provide stability and continuity for local communities, businesses and schools.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	3000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agriculture continues to face challenges from environmental, economic, political and social issues. Wise management practices are more important now than ever before. Profit-loss margins are tight, so producers must be aware of opportunities to cut costs and increase profits. Farm Service Agency borrower training is needed to enhance the management skills of farmers and ranchers borrowing capital from the Farm Service Agency. The need was determined by meeting with FSA loan officials and selected producers. Training is required to qualify for FSA loans which are often needed by producers who have been denied credit from traditional lenders.

What has been done

FSA Loan training was delivered using webinar and distance education technology to 3000 direct contacts. Some producers view the webinars at local FSA Offices and take an examination after each session. Other producers view the recording of the webinar on their home computer and take an examination on Moodle. The entire training session requires about 24 hours of the farmer/ranchers time. When the examinations have been successfully completed (80 percent or higher score), the farmer/rancher is awarded a certificate from FSA.

Results

FSA Loan Training is critically important to producers who are not able to get financing through traditional means. This training is required to be eligible for funds. The knowledge gained by each borrower is assessed immediately after each session. The project has brought Montana-based finance and production training to Montana producers. Without this training, many producers would not be able to access financing and may not be able to stay in business. No follow-up evaluation to assess changes in behavior or long-term outcomes has been completed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
604	Marketing and Distribution Practices
903	Communication, Education, and Information Delivery

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
- Populations changes (immigration, new cultural groupings, etc.)
- 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. MSU Extension had many successes in 2013.

MSU Beef Cattle programs received a boost when the 2013 Montana Legislature voted to help fund a second Beef Cattle Specialist position. This is a clear indication of the value that the state's leaders place on this Extension program. The position is in the final stages of being filled.

In June of 2013, President Waded Cruzado led a group of Montana State University's vice presidents, deans and other senior officers including the Director of Extension, on a 48-hour educational, outreach tour called the "Follow the Beef Bus Tour". Extension was heavily involved in the planning and implementation. The tour included stops at operating cattle ranches, a feedlot, the Northern Agricultural Research Center, the Aaniiih Nakoda College, and the Fort Belknap Livestock Facility. One evening, a homemade dinner was provided by 4-H youth and the Wheatland County Extension office. The tour highlighted Extension's work, along with the MSU College of Agriculture and the Montana Agricultural Experiment Station to support the beef industry.

The Beef Cattle Specialist provided training for 1365 beef cattle industry stakeholders through 43 formal beef cattle production training and management programs. Twenty producers followed up formal programming to learn more about forage nutrient analysis and ration balancing. Every penny saved on a ration results in a \$1.50 per cow savings for a 5-month winter/spring feeding period. In a mid-size 250-300 cow herd, this would result in a \$375-\$450 of feed cost savings for each cent saved per ration.

In 2013, MSU Extension's Sheep Specialist of 33 years retired. Work continued through county agents and partnerships. The Montana State University sheering school trained 31 shearers who are actively working in the industry.

MSU Extension weed specialists continued to be actively engaged in the industry, providing training and information statewide. Analysis indicates that for every dollar spent preventing an invasive plant from becoming established, 17 dollars were saved. Many workshop participants (84%) indicated they have begun to implement control measures or changed their control measures due to programming.

The Master Gardener program provided 13,480 student hours of training for 616 participants, which led to 156 Level 1 certifications, 35 Level 2 certifications and 8 Level 3 certifications. Volunteer hours amongst participants totaled 12,846; a value of over \$284,000.

The MSU Extension plant pathologist conducted a study of 119 participants in six counties, representing 47,500 acres and \$37.7 million in revenue. Results showed strong interest by producers to participate in on-farm research. The majority (70%) indicated they would be willing to devote 1-5% of their revenue to on-farm research in the future. Using 3% for the whole, that's potentially \$1.1 million in on-farm research in-kind donations.

Farm Service Agency Loan Training has increased the opportunity for producers to access financing, potentially enabling them to stay in business.

Key Items of Evaluation

- MSU Extension received partial funding from the Montana Legislature to add a second Beef Cattle Specialist.
- Senior leadership of the university, including the President, several vice presidents, deans, the Director of Extension took a two-day "Follow the Beef Bus Tour" visiting cattle ranches, feedlots, research centers, a reservation livestock facility and more to better understand the industry.
- Ration-balancing software training was completed in three counties, giving agents the ability to directly assist producers. Every penny saved by ration-balancing, equals \$1.50 per cow savings over a five-month feeding period.
- There were 111 carcass division and 24 ultrasound division qualifiers amongst the 916 total entries in the Steer of Merit program.
- An MSU Shearing School survey indicated that thirty-one graduates plan to seek shearing for hire during the spring 2014 season. In Montana, shearers get paid \$2.75 per head for shearing. In 2013, the estimated revenue earned by graduates was \$87,375.
- Failures of Priaxor fungicide were noted on Ascochyta blight of chickpea in 2013. An isolate from the grower in northern Montana was found resistant to Headline, a component of Priaxor. Advice from the MSU Extension Plant Pathologist to spray the crop with Proline saved the chickpea crop. One grower yielded 1700 lb/A on 580A, a gross profit of \$385,000.
- MSU Extension weed specialists continued to be actively engaged in the industry, providing training and information statewide. Analysis indicates that for every one dollar spent preventing an invasive plant from becoming established, 17 dollars are saved. Many workshop participants (84%) indicated they have begun to implement control measures or changed their control measures due to programming.
- One County survey showed that prior to taking the Master Gardener class, 77 percent had never attended an MSU Extension program. After attending the Master Gardener program 47 percent said they had attended at least one additional Extension program and 100 percent said they would recommend Extension programs to others.

- The Master Gardener program provided 13,480 student hours of training for 616 participants, which led to 156 Level 1 certifications, 35 Level 2 certifications and 8 Level 3 certifications. Volunteer hours amongst participants totaled 12,846, a value of over \$284,000.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Family Issues, Resources and Environments

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	45%			
802	Human Development and Family Well-Being	45%			
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	2.8	0.0	0.0	0.0
Actual Paid Professional	2.0	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
41341	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
85682	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct workshops in all areas
- Develop support groups where and when necessary
- Partner with agencies, associations, organizations, real estate personnel, county health officials, Montana Building Industry Association.
- Conduct Seminars on Estate Planning and Healthy Indoor Environments
- Revise MontGuides (fact sheets) to reflect the changes in state and federal laws related to estate planning.
- Develop publications on asthma awareness, lead-based paint and other home environmental issues.
- Conduct webinars when appropriate, develop/maintain current web sites, use other electronic opportunities when appropriate (Face Book, etc.)

2. Brief description of the target audience

- Caregivers of people with chronic illness
- Home health care providers
- Certified nursing assistants
- Tribal members
- Farmers/Ranchers
- Montana Financial Educational Coalition Partners
- 4-H Leaders
- State Agency Employees
- Home Builders, housing authorities, real estate professionals
- Remodeling Contractors
- Weatherization Contractors
- Homeowners
- Senior Citizens
- Parents/Grandparents
- Montana Department of Family Services

3. How was eXtension used?

Extension professionals and clientele are encouraged to use the eXtension system as a resource for locating information and educational materials related to specific questions and interests.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	5968	231882	751	43266

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

Year: 2013
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	24	0	24

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Estate Planning Participants will attend in-depth seminars on estate planning and will begin to make plans for distribution of their estates. Distribute MontGuides on state and federal law changes to 1800 people who have purchased Estate Planning: The Basics Packet

Year	Actual
2013	2908

Output #2

Output Measure

- Grandparents Raising Grandchildren: Produce and distribute a bimonthly newsletter to all Extension Offices, grandparents, and others on the mailing list; currently 150 names. Provide support and assistance to start educational/support groups in local communities for grandparents who are parenting children. Currently, there are 15 in the state.

Year	Actual
2013	910

Output #3

Output Measure

- Housing and Environmental Quality Number of publications/fact sheets distributed. Number of participants attending home environmental workshops/programs. Number of people testing their wells, doing radon tests.

Year	Actual
2013	543

Output #4

Output Measure

- Parenting Piece by Piece Train county Extension agents in a train-the-trainer model for delivering an 8 week workshop to parents. Conduct 3 six week workshops in the state for parents who have limited parenting skills, are at risk for child abuse and neglect or are mandated by the Montana Department of Family Services.
Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Powerful Tools for Care Givers: An estimated 100 people responsible for giving care to someone with chronic illness will learn steps in planning to provide adequate support and care. Caregivers will have tools to assist them in self-care as they provide or manage care for a friend or loved one.

Year	Actual
2013	50

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Powerful Tools for Care Givers: An estimated 100 people responsible for giving care to someone with chronic illness will learn steps in planning to provide adequate support and care. Caregivers will have tools to assist them in self-care as they provide or manage care for a friend or loved one.
2	Grandparents Raising Grandchildren: Grandparents will become aware of services available to support them as they raise their grandchildren. Grandparents will use current parenting strategies, prepare nutritious meals for themselves and their grandchildren, seek information to assist with their financial and legal issues related to parenting their grandchildren. Grandparents and their families will experience reduced stress and grandchildren will have a safe and nurturing environment to which to grow.
3	Housing and Environmental Quality: Participants will learn about an environmental health concerns common to new and existing homes e.g., molds, water quality, lead-based paint, radon, etc. Homes will routinely be tested/assessed and mitigated for environmental health issues such as molds, radon, asbestos, drinking water, carbon monoxide
4	Parenting Piece by Piece: Parents, especially those who have limited parenting skills, are at risk for child abuse and neglect or are mandated by the Montana Department of Family Services, will show evidence of improved parenting practices.
5	Estate Planning: Participants will make plans for the distribution of their property through estate planning. Families will become aware of state and federal laws impacting their estate planning situation.
6	Agricultural Pollution Prevention (Ag P2): resources for limiting environmental degradation related to agriculture will be available and actively distributed.
7	Community Health Resources Program: Extension offers leadership to state and federal efforts to provide targeted outreach to underserved, vulnerable, hard-to-reach populations regarding implementation of the Affordable Care Act (ACA)

Outcome #1

1. Outcome Measures

Powerful Tools for Care Givers: An estimated 100 people responsible for giving care to someone with chronic illness will learn steps in planning to provide adequate support and care. Caregivers will have tools to assist them in self-care as they provide or manage care for a friend or loved one.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The population of the state is aging with the fastest growing age group being those individuals over 85. Along with extended life expectancy comes a variety of chronic illnesses. Most older Montanans live on their own or with a spouse, yet they often require a certain level of caregiving. In rural areas there are few mental and other health resources to provide regular assistance. The people in caregiving roles can benefit from learning strategies that will make their efforts efficient and effective while maintaining their own health and well-being. This program allows family caregivers to find the tools they need to manage their lives and care for those they love.

What has been done

Six sessions of six week Powerful Tools for Caregivers classes were conducted with a total of 48 participants. In addition, many prior participants of the class continued meeting in informal support groups. Two people completed the requirements to become "Train the Trainers" increasing the opportunity to expand the numbers reached by qualified teachers of Powerful Tools for Caregivers classes.

Results

Data collected from class participants indicated an improvement in self-care behaviors, management of emotions, increased confidence in coping with caregiving demands and better use of community resources. A review of weekly action plans indicated that participants increased their success in finding 15-30 minutes 3-4 times per week to do activities they enjoyed. Participants wrote on final evaluations, "I learned to accept the disease", "I learned to see the condition as the cause of the problem, not the person", and "I learned the value of family meetings and that it is not all on my shoulders." Overall participants made statistically significant improvement on all items in the self-evaluation.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Grandparents Raising Grandchildren: Grandparents will become aware of services available to support them as they raise their grandchildren. Grandparents will use current parenting strategies, prepare nutritious meals for themselves and their grandchildren, seek information to assist with their financial and legal issues related to parenting their grandchildren. Grandparents and their families will experience reduced stress and grandchildren will have a safe and nurturing environment to which to grow.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	910

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

More than 6600 Montana grandparents are raising their grandchildren without parental involvement. These children often come to them because of family crisis. The grandparents are often ill-equipped to deal with the emotional, physical, financial and social hardships of raising children "a second time around". The Montana Grandparents Raising Grandchildren Project offers these caregivers support, education and access to resources so they can live happier, healthier lives. They can raise children who know emotional and physical safety, excel in school and social activities and are prepared to take on their new challenges. The Project focuses on grandparent well-being and providing research-based resources and support to manage the physical and emotional stress of kinship caregiving. The project especially focuses on rural areas of the state, including Indian Reservations, where services and support are difficult to find.

What has been done

Six locations have active groups that meet anywhere from weekly to monthly. Seven additional locations are actively working to set up groups. Eighteen additional locations have at least one facilitator available to answer questions, direct people to services, distribute literature and make presentations. Four grief seminars and one informational meeting was held on the Crow Indian

Reservation. Two train-the-trainer meetings were held with 10 new facilitators trained. Presentations were made at six statewide professional conferences. A new URL was purchased, www.montanagrandparents.org, and a new website is being updated. Marketing materials were developed and disseminated. The facilitators enhanced and developed new partnerships with AARP, Montana Department of Health and Human Service, Montana Office of Public Instruction, Generations United and Brookdale Foundation.

Results

Quantifiable data on the state level are difficult to collect as local facilitators who are trained volunteers, are not required to fill out formal evaluations. A new study is being initiated by the program founder to evaluate and analyze the program and a statewide conference will be held in 2014, setting up another good opportunity to collect data. As one example of impact, in Cascade County 31 families gained skills in how to speak to teachers during parent/teacher conferences, keeping grandchildren safe from drugs, social networking, grieving tips and securing local resources. The Grandparents Raising Grandchildren Program won the 2013 Generations United Grandfamilies Award and Dr. Bailey, program founder, received the MSU Excellence in Outreach Faculty Award.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Housing and Environmental Quality: Participants will learn about an environmental health concerns common to new and existing homes e.g., molds, water quality, lead-based paint, radon, etc. Homes will routinely be tested/assessed and mitigated for environmental health issues such as molds, radon, asbestos, drinking water, carbon monoxide

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	543

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Throughout Montana, consumers, real estate professionals, county health officers and others are reporting alarming incidences of home environmental issues and related health concerns. Radon levels in Montana are third highest in the nation and asthma has increased due to poor home environments. Mold has forced some homeowners from their homes and resulted in some homes having to be destroyed. Other home environmental issues common to Montana include asbestos in vermiculate insulation, drinking water contamination, improperly installed and maintained septic systems, carbon monoxide from faulty heating systems and lead-based paint.

What has been done

Twenty-eight training sessions related to healthy homes were conducted by the Weatherization Center. Classes included: Mobile Home Weatherization; Renovation, Repair and Painting Training and Certification; Warm Hearts Warm Homes; Asbestos Inspector Accreditation Refresher; Single Family Energy Audits and Lead Inspector/Risk Assessor Refresher. A total of 179 individuals from the Montana, North Dakota, Idaho and Wyoming successfully completed 389 hours of training provided through a combination of classroom, lab, and on-site instruction. The Extension Pollution Program administered the EcoStar Pollution Prevention Award Program which recognizes businesses and organizations that are championing pollution prevention. Extension managed the Housing Opportunities for People with AIDS/HIV (HOPWA) program.

Results

The Department of Energy claims a 35% reduction in energy use in homes that have been weatherized. By training contractors and providing resources, Extension helps low-income families save an average of \$437/year on an ongoing basis. In 2013, 22 organizations from 17 Montana communities earned EcoStar Awards. The award recognizes those taking environmentally responsible steps to reduce solid and hazardous waste, maximize efficiencies, conserve energy and water and improve air quality. The 22 winners' efforts conserved almost 7 million gallons of water and reduced waste by 41,493 pounds. In the latest reporting year, HOPWA assisted 142 individuals in Montana, South Dakota and North Dakota by helping them to find stable housing and connecting them with a case worker and medical services. Twenty-two individuals were assisted with finding employment. 200 additional individuals were offered support with landlord/tenant issues, housing services and other support.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #4

1. Outcome Measures

Parenting Piece by Piece: Parents, especially those who have limited parenting skills, are at risk for child abuse and neglect or are mandated by the Montana Department of Family Services, will show evidence of improved parenting practices.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Estate Planning: Participants will make plans for the distribution of their property through estate planning. Families will become aware of state and federal laws impacting their estate planning situation.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2908

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

In 2013, "Think You Know Who Gets Your Property When You Die? Think Again" estate planning workshops were held in 44 Montana communities reaching over 2,908 clients. Montanans purchased 1,647 "Estate Planning: the Basics" packets which contain a variety of estate planning MontGuides. The estate planning website had over 2,244 hits. Fifteen related webinars are available on the site. An interactive website and CD that illustrates how property passes under Montana law when a person dies without a written will had over 1,710 hits during 2013 and 80 CDs were mailed upon request. Partnerships were enhanced and/or developed with the State Bar of Montana, The Federal Taxation Committee-Montana Society of Certified Public Accountants and the School of Law at the University of Montana.

Results

As a result of the "Think Again" workshops, 65 percent indicated they had "lots of motivation" to take action toward estate planning. Over half did not have an estate plan when they took the class, only 4 percent correctly identified how property would be distributed and 38 percent thought a will could undo a life insurance designation form. Following the class, participants indicated that

the most important action they plan to take is: discuss estate plan with a spouse (43%), review their property ownership titles (13%), see an attorney (13%), review his/her will (15%) and write a will (17%). Participants indicated they appreciated being able to attend a session online without having to use family resources or risk winter roads.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

Agricultural Pollution Prevention (Ag P2): resources for limiting environmental degradation related to agriculture will be available and actively distributed.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agriculture is the number one industry in Montana - the heart of the State's economy. Montana farmers, ranchers and agricultural processing facilities are known for their high level of productivity, quality and efficiency. However, when improperly managed, agricultural practices have the potential to pollute and degrade the environment. The Montana Agricultural Pollution Prevention (P2) program supports and encourages agricultural entities across the state to adopt P2 measures to significantly reduce the impact of agricultural activities on the environment. The audience for this program includes agricultural policy-makers, organizational leaders, educators and agricultural producers and processors.

What has been done

Montana Ag P2 created a voluntary statewide agricultural P2 Outreach partnership, "Montana AgP2 Connect", consisting of over 200 agricultural commodity groups and organizations with a common goal of promoting and adopting voluntary pollution prevention practices. The organization distributed Agricultural Education folders to all High School Ag Ed Educators/Administrators. The group created a database of existing best practices, environmental management systems, case studies, and/or self-assessment resources refined specifically for

Montana. It also created the mtagp2.org website as a one-stop pollution prevention resource.

Results

Montana Ag P2 has showcased several Montana businesses that have been successful in pollution prevention efforts. The businesses have utilized AgP2 principles to realize significant energy savings and reduction of waste. The Cold Springs Ranch saved over 638,000 gallons of irrigation water, nearly 20 million BTUS of energy, averted .528 metric tons of CO2 and saved \$3,985 through their P2 efforts. The Amaltheia Organic Dairy has used P2 efforts to save over 12,000 BTUs, 624 gallons of fuel, 15,000 gallons of water and have reduced 1,300 pounds of hazardous waste and saved over \$4,000 annually. The Goddard Land and Cattle LTL, Inc. has created the LTL Custom Manure Service which provides area feedlots with custom clean-out, hauling and manure application services, as well as a system for documenting manure application and soil nutrient levels. Through windrowing of livestock manure in pens, LTL has cut fuel consumption and engine emissions in half; offset use of 130 tons of nitrogen fertilizer and 98 tons of phosphorous fertilizer and composted over 300 tons of manure. These pollution prevention efforts have saved LTL over \$132,000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #7

1. Outcome Measures

Community Health Resources Program: Extension offers leadership to state and federal efforts to provide targeted outreach to underserved, vulnerable, hard-to-reach populations regarding implementation of the Affordable Care Act (ACA)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	175

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Implementation of the Affordable Care Act (ACA) is a national initiative that requires states to provide targeted outreach to underserved, vulnerable, hard-to-reach populations. Montana is a model state for a high percentage of these populations. Montana has nearly 200,000 uninsured, amounting to approximately 20 percent of the total population. Montana opted not to expand Medicaid. As a result, it is estimated that anywhere from 50,000-70,000 individuals will remain uninsured even with implementation of the ACA. MSU Extension is an ideal delivery organization for ACA education and implementation because of the number of agents at the grass roots level across the state.

What has been done

MSU Extension's community health specialist is Extension's lead for implementation of the ACA and has partnered with agencies including but not limited to: Office of the Montana Commissioner of Securities & Insurance (CSA), the Montana Department of Public Health and Human Services (DPHHS) and the US Department of Health and Human Services. The specialist is the chair of the Professional Training Subcommittee (PTS) of the Nutrition and Health Committee for Planning and Guidance (NHCPG), USDA-NIFA. The goal of the PTS is "to assist health and nutrition state specialists, county agents and staff to implement health reform, advance health equality, improve health outcomes, reduce health disparities and provide consultation and guidance on these issues to the national program leaders."

Results

Montana received three federal Navigator Grants and the Montana OSI approved three insurance companies to sell insurance on the State Marketplace. Montana trained 55 Navigators in 46 towns and over 120 Certified Application Counselors scattered across the state.

The PTS identified 14 Extension state offices that have taken leadership in education and implementation of the ACA. The PTS is also reviewing and providing comments on the ECOP Health Task Force's upcoming national report entitled, "Cooperative Extension's National Framework for Health and Wellness" due for publication in spring of 2014.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Montana citizens are concerned about the quality of life of their families and often look to Extension for help. In addressing concerns, Extension specialists fill a variety of needs resulting from sparse populations, an aging demographic and a struggling national economy. The major programs covered in this report include assisting caregivers, providing resources and training to ensure healthy homes and helping citizens understand the transfer of wealth. In addition, MSU Extension has taken a leadership role in working with partners to deliver education and outreach related to the Affordable Care Act.

Data collection and evaluation in this area is complicated due to the use of networking and train-the-trainer programs designed to expand coverage with limited resources. For instance, in the Powerful Tools for Caregivers class, participants form ongoing support groups outside of the immediate supervision of Extension. Because of the training they receive, participants become leaders in their community and offer services as volunteer leaders. The agents continue to provide resources, research-based knowledge and other guidance, but impact data becomes more difficult to track as community leaders take over. The best impact is that the people are empowered and continue programing because of its value and need.

Programs to assist families with parenting skills are popular and provide a clear service to Montana. The Grandparents Raising Grandchildren program offers direct support to grandparents who take on childcare, often in crisis. Participants continue receiving newsletters and often continue support groups. Many take other Extension classes related to creating a will or estate planning. Reports show that the availability of the classes online is a major factor in participation. This exemplifies how MSU Extension reaches people where they are.

The Extension Housing and Environmental Quality program helped low-income families save an average of \$437/year while reducing energy consumption by an average of 35%.

Key Items of Evaluation

Powerful Tips for Caregivers: 100% who replied to a follow-up survey indicated an improvement in self-care behaviors, management of emotions, increased confidence in coping with caregiving demands and better use of community resources. A review of weekly action plans indicated that participants increased their success in finding 15-30 minutes 3-4 times per week to do activities they enjoyed. Overall participants made statistically significant improvement on all items in the self-evaluation.

Grandparents Raising Grandchildren: 31 families gained skills in speaking to teachers during parent/teacher conferences, keeping grandchildren safe from drugs, using social networking, grieving tips and securing local resources. The Grandparents Raising Grandchildren Program won the 2013 Generations United Grandfamilies Award.

Housing and Environmental Quality: By training and providing resources, Extension helps low-income families save an average of \$437/year on an ongoing basis. In 2013, 22 organizations from 17 Montana communities earned EcoStar Awards. The 22 winners' efforts conserved almost 7 million gallons of water and reduced waste by 41,493 pounds. In the latest reporting year, HOPWA assisted 142 individuals in Montana, South Dakota and North Dakota by helping them to find stable housing and connecting them with

a case worker and medical services. Twenty-two households found income producing jobs. 200 additional individuals were offered support with landlord/tenant issues, housing services and other support.

Estate planning workshops: 65 percent indicated they had "lots of motivation" to take action toward estate planning. Following the class, participants indicated they would: discuss estate plan with a spouse (43%), review their property ownership titles (13%), see an attorney (13%), review his/her will (15%) and write a will (17%).

Assistive Technology: Kits were placed in three Montana locations for check-out. On a post-evaluation questionnaire 131 participants indicated they would use: Pens for orally reading prescription dosages, devices that make it easier to get in and out of the car, ice cleats to attach to shoes/boots, devices to extend reach to grab items, assistance for low vision, zipper pulls, one-handed can openers and seat belt adjusters. Cost are saved and people are able to be self-sufficient longer.

Montana AgP2 Connect includes over 200 commodity groups and organizations with the shared goal of promoting and adopting voluntary pollution prevention principles. By using AgP2 principals, the Cold Springs Ranch saved over 638,000 gallons of irrigation water, nearly 20 million BTUS of energy, averted .528 metric tons of CO₂ and saved \$3,985.

Community Health Resources Program: Montana trained 55 Navigators in 46 towns and over 120 Certified Application Counselors who are scattered across the state.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Community and Economic 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	10%			
801	Individual and Family Resource Management	10%			
802	Human Development and Family Well-Being	25%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	20%			
805	Community Institutions, Health, and Social Services	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	5.2	0.0	0.0	0.0
Actual Paid Professional	3.6	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
58650	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
133286	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Community meetings held 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.
- Partnering with local adult education entities to identify class offerings.
- Planning for potential disasters that may occur in a community, e.g., EDEN.
- Training opportunities available for people serving on boards, councils and committees in both the public and private sectors.

2. Brief description of the target audience

- Adults interested in education
- Business and Community Leaders
- Local Development Entities
- Local Economic Development Entities
- Chamber of Commerce Members
- Tourism Leadership - local/state
- County and City Government
- Individuals interested in start-up and expansion or business
- County DES, 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 professionals and clientele are encouraged to use the eXtension system as a resource for locating information and educational materials related to specific questions and interests.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	7956	222390	872	19520

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

Year: 2013
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	7	0	7

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Community Resource Development: Number of Extension lead activities such as facilitation services, assistance in feasibility studies, strategic planning processes, development of business retention and expansion plans/programs. Number of partnerships and existing relationships utilized to strengthen sustainability of county and private efforts in community and economic development. Number of tribal members involved with community development issues related to the reservation(s).

Year	Actual
2013	475

Output #2

Output Measure

- Adult and Community Education Number of collaborations with community organizations to identify and establish classes to be offered in adult educational settings. Number of adult education classes offered during the year.

Year	Actual
2013	176

Output #3

Output Measure

- EDEN (Extension Disaster Emergency Network): Number of workshops/presentations/activities focused on disaster mitigation. Number of responses from PSA's, web site, etc. for emergency service entities.

Year	Actual
2013	851

Output #4

Output Measure

- Horizons Program: Number of Study Circle and Leadership Plenty meetings conducted. Number of people who have not been involved in community problem solving activities in the past. Number of community members trained and serving as facilitators for programs. Number of community members involved in Study circles and Leadership Plenty process. Not reporting on this Output for this Annual Report

Output #5

Output Measure

- CITIZEN LEADERSHIP AND GOOD GOVERNANCE: Number of people attending workshops/presentations focused on board responsibilities and authorities. Number of elected officials attending workshops on ethics.

Year	Actual
2013	6000

Output #6

Output Measure

- Community Development with Tribal Populations: Number of tribal members involved with community development issues related to the reservation(s).

Year	Actual
2013	4674

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	EDEN: The public will understand how they access local emergency services and take steps to prepare for a disaster. Reduction of accidents, loss of property and human life due to disasters.
2	COMMUNITY RESOURCE DEVELOPMENT: Community leaders, agency personnel, organization members and other citizens that will gain an understanding of the value of creating a community development/economic development plan. Community leaders, agency personnel, organization membership that will collaborate on economic development strategies. Communities will utilize an inclusive process to establish goals and action plans. Counties will establish and maintain a sustainable population with a viable and diversified economy. Communities will be prepared and able to deal with and direct change so it will reflect its goals, values and vision. Culturally sensitive programs focused on community needs will be developed through partnerships with tribal populations.
3	ADULT/COMMUNITY EDUCATION Participants will gain new knowledge leading them to try a new activity or making an informed decision as result of attending an adult education class. Participants will use a new skill, practice or technique as a result of attending a class.
4	CITIZEN LEADERSHIP AND GOOD GOVERNANCE: Number of people serving on boards, councils and/or committees who are prepared for the responsibilities/authorities of the entity. Number of boards, councils or committees that are successful in conducting the responsibilities/authorities of the group.
5	MSU Extension will engage with Tribal communities to enhance lives for youth and families through culturally sensitive community development.

Outcome #1

1. Outcome Measures

EDEN: The public will understand how they access local emergency services and take steps to prepare for a disaster. Reduction of accidents, loss of property and human life due to disasters.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	851

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

With Extension's presence in local communities across the nation, it has a unique ability to directly impact the public. All 50 states and three territories are represented on the Extension Disaster Education Network (EDEN). The immediate response to events is dependent upon an educated public and local responders to mitigate the ultimate impact. It is essential for the public to learn their role and become aware of the capabilities of the local emergency response agencies. Because of their history of working with other agencies across disciplines and across state lines, Extension is increasingly called upon to provide assistance during an emergency. The chair for the "emergency preparation exercise" committee of EDEN is a Montana agent. The charge of the committee is to test the capabilities of delivering information in a timely manner and to measure and document the outreach impact.

What has been done

A pilot communication exercise called an "In-box" exercise, was developed that involved sending a "test" emergency message to EDEN Points of Contact (POC). The POCs then relayed the message to selected Extension delegates. Each recipient was instructed to fill out a survey on an EDEN website. The goal was to see how many individuals could be reached through the EDEN system, and how long it would take to transmit a message from the EDEN central office to contacts at the state level. A pre-conference workshop was held at the EDEN annual conference that included a presentation on the Incident Command System and a simulation of a flood in four states. An eXtension webinar and another workshop entitled "Incident Command System/Emergency Operation Center Interface and Extension's Role" were also offered.

Results

Based on the survey from the "In-box exercise", a conservative estimate was that the network in the three states could reach over 1,400,000 constituents. Combining the results from both pilot exercises which included a total of seven states, a return on investment (ROI) estimate was

determined by figuring the message distribution cost by assigning the value of time involved for the EDEN delegates and comparing the value of the potential reach for emergency message. The ROI was estimated to be \$780/dollar spent. The pilot exercises were so successful the committee is considering conducting a nationwide exercise. Evaluations from the ICS training workshops, exercises that were presented at the EDEN annual conferences and the eXtension webinar, indicated that participants valued the training and wanted additional, more in-depth training programs. One state made the webinar version of the ICS training workshop mandatory for all agents in that state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety
805	Community Institutions, Health, and Social Services

Outcome #2

1. Outcome Measures

COMMUNITY RESOURCE DEVELOPMENT: Community leaders, agency personnel, organization members and other citizens that will gain an understanding of the value of creating a community development/economic development plan. Community leaders, agency personnel, organization membership that will collaborate on economic development strategies. Communities will utilize an inclusive process to establish goals and action plans. Counties will establish and maintain a sustainable population with a viable and diversified economy. Communities will be prepared and able to deal with and direct change so it will reflect its goals, values and vision. Culturally sensitive programs focused on community needs will be developed through partnerships with tribal populations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	475

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Montana Community Foundation estimates a large transfer of wealth will take place in Montana within the next ten years. Sustainability of rural communities is becoming increasingly more difficult. Creating community foundations helps ensure the vitality of a community by providing a mechanism to keep local financial capital from exiting the area when transfers of

wealth occur. Partnerships are needed to study and promote existing businesses and improve community infrastructure as a means of meeting the economic needs of the community. MSU Extension provides education and support to community organizations. Partnerships create robust results that maximize financial and human resources.

What has been done

MSU developed a web site for the Rural Community Development Initiative grant and is continuing to update it as information is available. Curriculum development for the program is ongoing. Throughout 2013, professional development opportunities were provided for 16 MSU Extension agents and three Local Community Foundation (LCF) board members in two locations, Bozeman and Glendive. Training included a discussion of USDA/RCDI grant and partnerships; MSU Extension's leadership/facilitation role with LCF; orientation to LCF; Transfer of Wealth and Introduction to Strategic Planning. Facilitated discussion was held to determine training needs and resources and to identify strengths and weaknesses of LCFs in Montana. The information will be used to develop tools and build capacity.

Results

Participant evaluations indicated the overall quality of the program was an 8 of 10. Course objectives that were highly valued included: group interactions, Driver's Model (strategic planning), new resources, renewed excitement for working with LCFs, and increased understanding of LCF work. As a result of the training, participants indicated they would implement the following: establish a new LCF, provide strategic planning training and facilitation to LCF's in their counties. The Culbertson Area Community Foundation was founded in 2008 with seed money from actions related to the Horizons program. In 2013, they raised \$15,816 for their fund, bringing the total to over \$43,000. They granted \$1,100 to the Roosevelt Medical Center for making the facility more homelike and comfortable for patients and the River Rats 4-H Club to purchase potting soil and bedding plants for the vegetable and flower planters at the Culbertson nursing home. This is an example of how other LCFs will work to enhance Montana's rural communities.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

ADULT/COMMUNITY EDUCATION Participants will gain new knowledge leading them to try a new activity or making an informed decision as result of attending an adult education class. Participants will use a new skill, practice or technique as a result of attending a class.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	176

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a need for continuing education to enhance the lives of Montana citizens. The economic downturn has increased the desire in many people to learn new skills. They feel an urgency to be as prepared as possible for the uncertain job market. Additionally, many of the adult education classes help participants learn new skills and information they can put to use in their home or business environments.

What has been done

Extension agents are heavily involved in adult education. Data from related programs is found under the Master Gardener program, Food Safety and Preservation programs, Weed Control, Crops and nearly every other area of this report. Extensive education opportunities are provided daily, year-round and statewide, both directly and online. In Powell County, Extension has offered an adult education program for 22 years. This year they offered 18 classes including fully using the iPad, horticulture and writing. Extension agents in Sheridan, Daniels, Roosevelt and Valley counties host a teacher training workshop annually to give area teachers the opportunity to receive continuing education credits without having to travel long distances. This year the classes covered steps and strategies for handling stress in their personal lives and classrooms. The two eight-hour sessions were held in Plentywood, Glasgow and Sidney.

Results

Classes provided skill enhancement and enjoyment for Powell County residents. They were affordable and met the direct requests of community members to have local access to technology and horticulture related classes. Teachers attending the professional development training in Eastern Montana filled out surveys evaluating the course. They indicated a great appreciation for having access to training locally. Collectively they rated the program as worthwhile and beneficial. It is estimated that being able to attend local training saved each teacher up to \$350 in travel costs by not having to purchase gas, hotel and meals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #4

1. Outcome Measures

CITIZEN LEADERSHIP AND GOOD GOVERNANCE: Number of people serving on boards, councils and/or committees who are prepared for the responsibilities/authorities of the entity. Number of boards, councils or committees that are successful in conducting the responsibilities/authorities of the group.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	6000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montana county and city officials are responsible for more than \$1 billion in public funds and more than 11,000 employees. Many of these public servants have little or no training for those roles and responsibilities, human resources, public meeting laws or budgeting and financing. The MSU Extension Local Government Center (LGC) provides the only training and technical assistance of its kind for Montana city and county elected officials and employees. The Montana Constitution requires a Voter Review Process every 10 years for all local governments: the LGC is poised to provide assistance to communities for the 2014 review.

What has been done

The MSU Extension LGC offers more than 100 affordable professional development workshops each year. Over 90 percent of Montana's clerks of district court complete a 40-hour (4-year) certification program and over 70 percent of municipal clerks, treasurers and finance officers participate in a 120 hour (3-year) certification program. In total, more than 6,000 officials and board members attended one or more LGC workshops in the last fiscal year. The Center published it's 23rd edition of the Montana Local Government Profile which captures financial data and government characteristics for Montana's counties and incorporated municipalities. Over twenty years of data is currently being converted to a web based data system for public use.

Results

Evaluation summaries following the 2013 Clerks of District Court Certification training verify the impact of the LGC. Twenty-one sessions were evaluated (using a scale of 1-5, with five being most favorable); 14 received a score of over 4.5. The Court Filings presentation received a 4.96 for both relevance and usefulness. Managing Public Records, Human Resource Management,

Court Technology and the Real Colors session all received over 4.7 for usefulness. The Montana Municipal Institute for Clerks, Treasurers and Finance Officers showed similar results with 94 percent (30 out of 32 session) receiving a rating of 4.0 or higher. The overall rating for the Municipal Institute was 4.4 for usefulness. The LGC consistently receives a 96 percent approval rating from county commissioners, clerks of district court, mayors, city manager, city commissioners and municipal clerks, treasurers and finance officers who attend the LGC's annual trainings and certification programs.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

MSU Extension will engage with Tribal communities to enhance lives for youth and families through culturally sensitive community development.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4674

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montana is home to seven Indian Reservations, including 12 tribal affiliations. Native Americans represent the state's largest minority at 6.5 percent. Native American youth living on reservations have unique circumstances. The Fort Peck Reservation recently defined itself as part of a unique Fourth World. The Fourth World concept is described as an underdeveloped cultural and economic enclave, a community that exists within, and yet is isolated from mainstream America. The conditions of this Fourth World necessitate the mission of this project which is to light the path of tribal youth development, leadership and self-determination.

What has been done

An external team visited over two years ago to assess the growing number of suicides and recommended the Fort Peck Youth and Family Activities Committee be formed. Extension has

been an active partner and directly assisted by offering classes that use 4-H youth development philosophies and doctrines. Hundreds of families have been served in seven communities through activities which included a life skill lesson, games and a meal. School day activities included a science fair, energy education, cooking and food preservation lessons and craft making. The group also organized a Progressive Agriculture Safety Day where families learned about sun-, driving-, bike-, grain-, fire-, chemical-safety, as well as meth awareness. Families maintain a pumpkin patch in the Tribes Extension Garden.

Results

The most important impact of this program has been a decrease in the number of youth suicides on the Fort Peck Reservation. The Fort Peck Tribes have demonstrated their support of the group's efforts by contributing resources including \$37,100 toward activities and extra funding. Each event brings families together and increases life skills and education, often leading to a change in action as well. To further enhance the program, the Fort Peck Tribes gave the Fort Peck Extension program 99 acres known as "Deogo Bend" to use for educational purposes. Over the year 4674 people were directly impacted and an additional 20,000 were impacted indirectly through the enriched citizenry of the people and rebuilding the community at the family level.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Montana communities face a wide variety of challenges from declining population in some areas to overwhelming growth in others. Natural disasters and transfer of wealth are

huge issues. The goals of this program are met in a variety of ways ranging from disaster planning and management efforts to comprehensive work of building community foundations to adult education to extensive training for elected and city/county officials.

This year, a collaboration among many partners on the Fort Peck Reservation led to the reduction of youth suicides. The program was developed by the Fort Peck Youth and Family Activities Committee of which Extension was an active partner.

Also in the past year, Extension implemented the Resource Education and Agriculture Leadership (REAL) Montana Program. Modeling similar programs in other states, REAL is a two-year leadership program offering in-depth education and training on leadership development, communication skills, agriculture institutions and agencies, energy development, economics and policy, international trade, and other current industry topics. The target audience is adults who earn a substantial percentage of their livelihoods from Montana agriculture and/or natural resources and who demonstrate the willingness and aptitude for long-term leadership in their industry. REAL will help Montana move into the future ready to face unprecedented changes due to new technologies, consumer preferences, environmental concerns, government regulation and global trade. This program will provide long term contributions to communities across the state and will be fully reported in subsequent years once it has completed a full cycle.

Key Items of Evaluation

- An "In-box exercise" demonstrated that 1,400,000 constituents in three states could be quickly reached through the EDEN Network in an emergency.
- 16 MSU Extension agents and three Local Community Foundation (LCF) board members, completed training that would enable them to start a new LCF in their community and provide strategic planning training and facilitation for the new LCF.
- An example of how LCF's will enhance Montana's rural communities, is the Culbertson Area LCF. In 2013, the foundation granted \$1,100 to the Roosevelt Medical Center for facility improvements and to the River Rats 4-H Club to purchase potting soil and bedding plants for the Culbertson nursing home.
- Eastern Montana teachers were able to attend in-service training provided by Extension, saving up to \$350/each by not having to travel to training in other locations.
- The MSU Extension Local Government Center provided training for over 90 percent of Montana's clerks of district court (40 hour, 4-year certification program) and over 70 percent of municipal clerks, treasurers and finance officers (120 hour, 3-year certification program). On a scale of 1-5, with five being the most favorable, 14 of 21 sessions for the district court clerks received a rating of over 4.5. The Montana Municipal Institute for Clerks, Treasurers and Finance Officers received a rating of over 4.0 for 30 of 32 sessions.
- Rates of youth suicide on the Fort Peck Reservation declined as a collaboration of partners worked together to provide life skill lessons, games and resources designed to strengthen the family unit while building competencies in areas ranging from energy education, to food preservation, to culturally based activities.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Climate Change - Natural Resources and Environment

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%			
121	Management of Range Resources	20%			
123	Management and Sustainability of Forest Resources	20%			
135	Aquatic and Terrestrial Wildlife	10%			
136	Conservation of Biological Diversity	10%			
216	Integrated Pest Management Systems	10%			
605	Natural Resource and Environmental Economics	20%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	3.4	0.0	0.0	0.0
Actual Paid Professional	4.6	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
83963	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
152446	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct workshops that will address specific topics such as forest stewardship and controlling pests for Extension Professionals and clientele.
- Partner with local and state associations and organizations that are concerned about natural resource issues.
 - Prepare MontGuides (fact sheets) and information for web sites on natural resource topics (water, range, forest, etc) that include such things as changes in regulations, forestry issues, rangeland issues and small acreage concerns.
 - Conduct workshops on water quality and quantity.
 - Develop Range Monitoring systems, conduct the Rangeland Institute and design range management seminars.

2. Brief description of the target audience

- Private Forest Land Owners
- Graduates of the Forest Stewardship Program
- County Weed Boards
- Farmers/Ranchers/Ag Producers
- Private Land Owners
- Small Acreage Land Owners
- Producers who operate Animal Feeding Operations
- Professional loggers/foresters
- Tribal Members and Tribal Colleges

3. How was eXtension used?

An MSU Extension specialist is a national coordinator of the rangeland community of practice (CoP) in eXtension. This brings first hand knowledge of eXtension to Extension professionals and clientele. It is used to obtain resource materials and information on specific issues or concerns they may have in all natural resource areas.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	12938	165352	1641	7094

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

Year: 2013
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	28	0	28

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Forestry: Number of private forest owners who attend one/two workshops to understand the timber sale process allowing them to complete a successful timber sale. Number of people attending the forestry mini-college, a one-day educational program that includes 10 forestry related courses that provide knowledge or sources of assistance necessary to implement their forest stewardship plans. Number of people completing a forest stewardship plan. Number of people attending Forest Stewardship programs.

Year	Actual
2013	374

Output #2

Output Measure

- Small Acreage Lands: Number of people attending workshops or participating in private consultations about pest control, weed management and other related/management topics. Number of people who participate in field days and demonstration opportunities for land owners to observe techniques and best practices for land stewardship. Number of subscribers to Big Sky Small Acres publication.

Year	Actual
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2013 500

Output #3

Output Measure

- Environmentally Sensitive Management Systems: Number of people attending workshops or requesting private consultation for developing a management plan. (forestry, animal feeding operations, small acreages, etc) Number of demonstrations of sprayer calibrations, GPS usage and other technical practices that provide environmental protection. To provide up-to-date guidance for operators through an AFO/CAFO website and electronic library, MontGuide fact sheets and field days. To provide current information on regulations, changes that impact operators.

Year	Actual
2013	5350

Output #4

Output Measure

- WATER QUALITY: Number of people attending Well Educated programs, starting a file to track water quality, regularly testing their wells and receiving materials for interpreting results and gaining insight on ways to help protect ground water resources. Number of people attending water quality workshops that specifically address issues related to reservations. Number of people viewing the documentary "Tribal Waters: The Clean Water Act in Indian Country". Number of people viewing the video series for well and septic owners - 8 part educational video. Number of people attending the watershed - citizen water quality monitoring workshops.

Year	Actual
2013	304

Output #5

Output Measure

- Range: Number of people participating in Range Monitoring programs. Number of people attending the Range Management Institute. Number of requests to identify new weeds found, GPS assistance, use of sprayers for small weed infestation control. Number of producers working through the Livestock Environmental Management Systems self assessment for their operation.

Year	Actual
2013	565

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Forestry: Participants will be able to sell their timber because of information learned in Extension workshops. Landowners will develop plans and implement activities that will enhance the sustainability of their forest lands and meet their individual forest stewardship objectives. Private forest landowners will manage their forests lands so they will continue to provide environmental, economic and social benefits to Montana citizens.
2	Small Acreages: Producers and small acreage landowners will be aware of insect, weed and disease infestations as they are developing so they can make management decisions in a timely manner. Applicators will learn the risks associated with applying pesticides and safety precautions recommended to mitigate those risks, while at the same time, learn techniques in applying chemicals appropriately. Small landowners will develop a plan and take action steps to manage their property to meet their individual stewardship objectives.
3	Environmentally Sensitive Management Systems: Producers will understand the current rules and regulations for animal feeding operations and how to evaluate their own operation. This also applies to forestry plans, grazing land plans and any other plans appropriate to the individual operation. Landowners will implement best practices in adopting weed, crop, pest and forage management strategies. Landowners will be more profitable while protecting the environment. All operations that develop and implement a Comprehensive Nutrient Management Plan (CNMP) to protect ground and surface water, apply manure at agronomic rates and utilize technologies that allow them to better operate and/or monitor their operation. All operations will remain economically viable and environmentally friendly.
4	Water Quality: Participants will learn the importance of and steps to do well testing, and will follow recommendations resulting from tests. Forage producers/participants will learn proper timing and implementation of control techniques and methods appropriate to their operations. Participants will understand the importance of water and related issues as a result of information from water projects such as Water Monitoring Activities, Well and Septic Programs and video, film and website materials.
5	Range: As a result of participating in Range Monitoring programs, ranch managers/producers will learn to identify plants, determine phenologic stage of plant growth, determine monitoring site location and determine appropriate time for monitoring activities which leads to improvement in resource management strategies. As a result of attending the Extension Range Management Institute, participants will be able to apply basic principles of range management and related topics determined at the planning stage. People will request information on identifying new weeds found, GPS assistance and use of sprayers for small weed infestation control. Producers will work through the Livestock Environmental Management Systems self assessment to understand how their operation affects the environment and to prioritize and develop action plans for addressing any environmental risks.

Outcome #1

1. Outcome Measures

Forestry: Participants will be able to sell their timber because of information learned in Extension workshops. Landowners will develop plans and implement activities that will enhance the sustainability of their forest lands and meet their individual forest stewardship objectives. Private forest landowners will manage their forests lands so they will continue to provide environmental, economic and social benefits to Montana citizens.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	374

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montana's wood products industry has been dramatically impacted by a lack of logs from federal lands (more than 65% of Montana's forested land is under federal jurisdiction), the rise in value of rural real estate prices and corresponding interest of people wanting small forested ranchettes (29,112 family forest owners own parcels of 10 acres or more and a much greater number own smaller tracts). New small-acreage landowners often are not aware that managing their trees helps them maintain an ecologically functional forest, reduce wildfire hazards, increase wildlife habitat conservation and earn a modest income. Larger acreage landowners also need the latest resources to effectively manage viable forested tracts. MSU Extension has played a vital role in forest education for more than 23 years. The MSU Extension Forestry team provides publications, seminars and workshops for landowners, as well as training programs for the Montana Logging Association and Montana Tree Farm.

What has been done

In 2013, 16 intensive workshops including five stewardship, one mini-college and ten shorter workshops (through programs including Master Gardener, Tree Farm and Rotary Club meeting), were offered to private landowners. These covered topics such as fire hazard reduction, productive soils maintenance, forest operations and safety, forest grazing and noxious weed management, advanced harvesting practices, wildlife habitat, windbreak and shelterbelt management and insects and disease management. Four workshops were held on windbreak design, tree planting and maintenance. MSU Extension Forestry also organized and conducted the annual Natural Resources Youth Camp for one week during the summer for 40 youth aged 14-18. The "Forestry Minute" was broadcast daily to a listenership of 22,000. Six workshops were offered for teachers.

Results

Growing trees where they don't naturally occur, such as prairie landscapes, is a challenge that comes with many benefits. Each windbreak design, tree planting and maintenance workshop typically impacts over 2,000 acres. Extension Forestry training helps landowners improve property aesthetics and wildlife habitat, while increasing the economic value of the property. A windbreak can reduce winter heating and summer cooling costs by 30% as well as livestock feeding costs by an equal amount. 272 landowners and 13 logging professionals gained proficiency in skills related to forest conservation and management practices. 49 teachers completed training on how to use Project Learning Tree curriculum in their classrooms. In all at least 13,413 acres were impacted through stewardship classes and an additional 6,927 acres through Stewardship advisor visits and plan updates with past Forest Stewardship Workshop attendees.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

Small Acreages: Producers and small acreage landowners will be aware of insect, weed and disease infestations as they are developing so they can make management decisions in a timely manner. Applicators will learn the risks associated with applying pesticides and safety precautions recommended to mitigate those risks, while at the same time, learn techniques in applying chemicals appropriately. Small landowners will develop a plan and take action steps to manage their property to meet their individual stewardship objectives.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are a growing number of families living on small acreages ranging from 5-30 acres. In general their knowledge about land stewardship is limited so Extension is often contacted for information about weed control, pasture management, water quality and quantity and resource management, among other issues. A recent survey of 100 current or recent subscribers of the Big

Sky Small Acres Magazine indicated that 99% of respondents were interested in information about wildlife on their property. A similar survey of all Extension agents in Montana showed that more than 80% of respondents received questions related to wildlife.

What has been done

A wildlife damage control session was presented as in-service training for Extension agents in Montana, and another was held for Idaho agents. In addition, 21 agents attended a 2-day workshop on wildlife damage control. Videos are currently being developed to cover the most common wildlife control problems. A handbook for wildlife control for organic farmers is also being prepared. A website is being developed that covers a range of material agents need to handle clientele questions related to wildlife damage.

Results

Pre- and post- tests from workshop participants showed knowledge of wildlife damage control techniques increased from 62 percent to 87 percent. This is important because some traditional techniques for pest wildlife are often misused. As an example, strychnine is commonly used to treat ground squirrel populations. However, strychnine is illegal and dangerous for above-ground use and is less effective than other toxicants that are now available. Alfalfa loss to ground squirrels in Montana is more than \$7 million annually. Fortunately, ground squirrel damage can be greatly reduced or eliminated by using the proper toxicants at the proper time with the proper techniques. The increased knowledge of agents due to this training will lead to increased economic profitability as they share the latest information on proper wildlife control techniques.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics

Outcome #3

1. Outcome Measures

Environmentally Sensitive Management Systems: Producers will understand the current rules and regulations for animal feeding operations and how to evaluate their own operation. This also applies to forestry plans, grazing land plans and any other plans appropriate to the individual operation. Landowners will implement best practices in adopting weed, crop, pest and forage management strategies. Landowners will be more profitable while protecting the environment. All operations that develop and implement a Comprehensive Nutrient Management Plan (CNMP) to protect ground and surface water, apply manure at agronomic rates and utilize technologies that allow them to better operate and/or monitor their operation. All operations will remain economically viable and environmentally friendly.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	5350

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

What has been done

The MSU Pesticide Education Program delivered 19 private pesticide applicator program opportunities to approximately 5,350 Montana private applicators in 2013. This included 12 initial trainings that covered seven core areas of pesticide education to approximately 300 new applicators. The MSU Pesticide Education Specialist delivered 45 pesticide education presentations directly to 1852 private pesticide applicators across Montana. This covered such topics as storage and security of pesticides, pesticide performance and water quality, pesticide safety, calibration use restrictions and more. The Montana Private Applicator Exam and Addendum were updated. The specialist delivered eight statewide ag alerts, two articles in the Montana IPM Bulletin, four MSU News releases, a Fact sheet and a MontGuide. Multiple train-the-trainer programs were delivered in 2013, as well, including the IPM Technology Forum which was attended by 40 agents who act as PAT coordinators in their counties.

Results

New applicator licenses were earned by 254 individuals and 1,332 earned re-certification. Surveys indicate that approximately 50% of pesticide applicators (both licensed and unlicensed) changed their behaviors as a result of attending MSU Extension sponsored pesticide programs. Applicators indicate that they will be more vigilant when wearing personal protective equipment; washing contaminated clothing, and calibrating their sprayers on an annual basis.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics

Outcome #4

1. Outcome Measures

Water Quality: Participants will learn the importance of and steps to do well testing, and will follow recommendations resulting from tests. Forage producers/participants will learn proper timing and implementation of control techniques and methods appropriate to their operations. Participants will understand the importance of water and related issues as a result of information from water projects such as Water Monitoring Activities, Well and Septic Programs and video, film and website materials.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	304

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Montana has 60,000 miles of perennial streams which are an invaluable source for irrigation, drinking water and recreation. At least 15% of stream miles are not meeting standards for protection of public health and over 25% are not meeting goals for ecological function. The majority of the impairment is the result of non-point source pollution to which all members of the public contribute. Management of these pollution sources is dealt with based on voluntary action. In order for the general public to take actions to address non-point source pollution, they must be aware that there is an issue and their role in addressing it.

What has been done

MSU Extension Water Quality (MSUEWQ) is working with state agencies, and local watershed groups to involve citizens in water quality data collection to document and understand water quality issues in their local streams. In addition to teaching a three day workshop open to all Montana watershed managers, MSUEWQ conducted specialized trainings with four local groups to facilitate collection of credible data to inform management decisions. Including various other lessons, the Extension water specialist offered 20 presentations with 304 participants. The MSUEWQ concluded a two-year project monitoring E coli in Bozeman Creek.

Results

MSUEWQ programming has contributed to a statewide increase in the number of citizen groups who are collecting credible citizen-based water quality data. Involving citizens fosters stewardship by helping people see how they impact their environment. Understanding they have an impact, leads people to change their behavior. These efforts also provide useful data that state agencies

and local decision makers can use to form water management strategies. The Bozeman Creek E. coli project began in 2012 and concluded this year with results indicating that Bozeman Creek has lower concentrations of E. coli before traveling through city limits, higher concentrations through the city and lower concentrations north of downtown before the confluence with the East Gallatin River. While concentration increases during low flow and vice versa, the data indicates an increase in E. coli through developed areas depending on diverse human interactions with the stream and adjacent land.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
136	Conservation of Biological Diversity

Outcome #5

1. Outcome Measures

Range: As a result of participating in Range Monitoring programs, ranch managers/producers will learn to identify plants, determine phenologic stage of plant growth, determine monitoring site location and determine appropriate time for monitoring activities which leads to improvement in resource management strategies. As a result of attending the Extension Range Management Institute, participants will be able to apply basic principles of range management and related topics determined at the planning stage. People will request information on identifying new weeds found, GPS assistance and use of sprayers for small weed infestation control. Producers will work through the Livestock Environmental Management Systems self assessment to understand how their operation affects the environment and to prioritize and develop action plans for addressing any environmental risks.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	571

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Over 90 percent of land owners and public land managers have invasive annual grasses on their property and over 70 percent of them believe invasive annual grasses have increased in the past 15 years. Hundreds of studies have been conducted on invasive annual grasses in the Great Basin of the U.S. but very little information exists for Montana and the northern Great Plains. This

program aims to conduct sound research and deliver science-based information for private and public land managers who are dealing with invasive annual grasses on Montana range and wild lands.

What has been done

Research continued on the potential to use a pathogen as a biological control of the invasive annual grasses - cheatgrass (*Bromus tectorum*) and Japanese brome (*B. Japonicus*). Another continuing study integrates herbicides and seeding to restore rangeland from spotted knapweed (*Centaurea stoebe*) and annual brome infestation. A third study was started which will quantify the response of a plant community to broadleaf weed control with special focus on whether invasive annual grasses increase in response to weed control. Several presentations and seminars on invasive annual grass identification, biology, ecology and management were conducted and dozens of individual phone calls and emails from clientele across Montana were answered.

Results

Participants (84%) who attended Extension programming on invasive annual grasses indicated they are actively implementing or have changed their control measures in response to Extension's programs. These steps will help to improve the management of range and wild land resources. MSU Extension is developing and refining best management practices including integrating chemical, biological and cultural tools for improving plant community composition and long-term sustainability of Montana range and wild lands.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Montana has abundant natural resources and Montanans have a desire to preserve and protect them, while also making a living and enjoying these treasures. Management

and stewardship are necessary to maximize outputs while minimizing negative outcomes. Goals in this area were met in a number of specific and significant ways.

Landowners with forested acreage became knowledgeable in forest conservation and management practices through a series of intensive classes. Youth learned about forestry, wildlife and noxious weed management in classes developed for them and teachers learned how to use a curriculum designed to share principles of stewardship with children in a school setting. In addition, MSU Extension Forestry offered the primary training programs for the Montana Logging Association and Montana Tree Farm Program, helping improve logger and landowner service provider knowledge and skills regarding ecologically sustainable forestry practices.

Small acreage landowners and Extension agents statewide worked together to improve stewardship of land through classes, one-on-one phone calls and emails, publications, webinars and office and site visits. Based on a survey of all Montana Extension agents and specialists, 47% of respondents indicated they "constantly" received questions about weeds and 25% "constantly" received questions about insects and other pests from small acreage landowners. More than 40% of respondents, "often" received questions from small acreage landowners related to grazing/range, horticulture, water management, equine and livestock and wildlife and habitat. Evaluations of clients following these interactions have not been completed at the state level. However, one area of emphasis in 2013 was controlling wildlife damage. In particular, 21 agents learned the latest information on control techniques so they can reply to questions with the latest scientific information. In addition, a website, training videos and a handbook are being prepared to answer these questions in the future.

The MSU Pesticide Education Program delivered 19 private pesticide applicator program opportunities to approximately 5,350 Montana private applicators. 254 individuals earned first time certification and 1,332 earned re-certification.

The MSU Extension Water Quality program is working to educate citizens and involve them with collecting data on Montana's waterways. One recently completed study of Bozeman Creek found clear human impacts as measured by E Coli. The study will be used to manage the resource in the future. Utilizing citizens in the data collection connects them to the process and increases the likelihood of positive behavior changes.

Participants (84%) who attended Extension programming focused on invasive annual grasses indicated that they are actively implementing control measures or have changed their control measures in response to Extension's programs. These steps will help to improve the management of range and wild land resources. MSU Extension is developing and refining best management practices including integrating chemical, biological and cultural tools for improving plant community composition and long-term sustainability of Montana range and wild lands.

Key Items of Evaluation

272 landowners and 13 professionals gained proficiency in forest inventory, ecological processes conservation, management plan development and implementation of desired forest practices.

13,413 acres were impacted through 2013 Forest Stewardship classes and an additional 6,927 acres through stewardship advisor visits and plan updates with past

stewardship workshop attendees.

More than 1,300,000 acres have been impacted through MSU Extension Forestry since 1991.

Big Sky Small Acres Magazine: 100 current and recent subscribers were mailed a survey. Fifty-one responded.

- More than 70% of respondents indicated they were "interested" or "very interested" in information about weed management, horticulture, wildlife and habitat, water management, insects/pests.
 - 86% indicated the magazine makes them feel connected to Montana State University Extension
 - 68% indicated they have put into practice things they learned from the Magazine
 - 28% indicated they contacted their local Extension office for more information because of the Magazine
- 33% indicated they utilized additional Extension resources that they learned about from the Magazine
- 54% indicated they shared articles from the magazine with others

MSU Extension Agents and Specialists were asked to complete an online survey - 32 responded. When asked what resources they use to meet the needs of small-acreage landowners they replied:

- MontGuides: often - 70%, occasionally - 30%
- Involve Specialists: often - 43%, occasionally - 50%
- Web Sites (including eXtension): often - 53%, occasionally - 43%

When asked about the questions they receive from small acreage landowners, they replied:

- Weeds: constantly - 47%, often 21%, occasionally 21%
- Insects/Pests: constantly 24%, often 34%, occasionally 31%
- Horticulture: constantly 25%, often 43%, occasionally 29%
- Wildlife and Habitat: constantly 10%, often 17%, occasionally 55%
- Water Management: constantly 4%, often 11%, occasionally 64%

Pre- and post- tests from Wildlife Control workshop participants showed that knowledge of wildlife damage control techniques increased from 62 percent to 87 percent.

Surveys indicate that approximately 50% of pesticide applicators (both licensed and unlicensed) changed their behaviors as a result of attending MSU Extension sponsored pesticide programs. Applicators indicate that they will be more vigilant when wearing personal protective equipment; washing contaminated clothing, and calibrating their sprayers on an annual basis. recertification was earned by 219 individuals.

Participants (84%) who attended Extension programming focused on invasive annual grasses indicated that they are actively implementing or have changed their control measures in response to Extension's programs.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Sustainable Energy

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
131	Alternative Uses of Land	10%			
402	Engineering Systems and Equipment	20%			
605	Natural Resource and Environmental Economics	20%			
608	Community Resource Planning and Development	20%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	20%			
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	2.3	0.0	0.0	0.0
Actual Paid Professional	1.0	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
57	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
60925	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Produce MontGuides on current energy topics
- Conduct community meetings on energy topics
- Conduct meetings for agriculture and other landowners on alternative energy topics
- Partner with agencies, local and tribal government, organizations and industry
- Conduct meetings and seminars on methods for evaluating alternative energy opportunities
- Conduct workshops on home energy for the building/remodeling industry
- Tibbal Housing Authority

2. Brief description of the target audience

- Farmers and Ranchers
- Non-farm or ranch energy users
- Landowners
- Local Government
- Current Community Leadership
- Local Development Entities
- Local Economic Development Entities
- Chamber of Commerce Members
- 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?

Extension professionals and clientele are encouraged to use the system as a resource for information and educational materials related to their specific questions and concerns. The Ask an Expert function has been valuable to provide information that is not available in our state.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	584	1000	0	0

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

Patent Applications Submitted

Year: 2013

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	7	0	7

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Energy and Agriculture: Number of people attending workshops/presentations or using the website for information about energy alternatives and what criteria to use for decision making on becoming involved with energy generation. (wind, solar, bio-diesel, bio-mass, oilseed production/processing, ethanol etc.) Number of producers attending seminars/demonstrations on using energy saving tillage system practices.

Year	Actual
2013	150

Output #2

Output Measure

- Residential Energy: Number of homeowners and builders who attend workshops/seminars or accessing the web site on home energy saving/conservation practices. Number of home builders, contractors and crews attending workshops on weatherization techniques in construction of homes. Number of people who gain information about the Camelina Composite Pellet Fuels for home stoves. Number of people learning methods to save home energy, including purchasing Energy Star products. Number of people using energy saving practices in new and remodel construction. Number of people practicing weatherization techniques.

Year	Actual
2013	179

Output #3

Output Measure

- Renewable/Alternative Energy: Number of people making decisions about alternative energy opportunities based on Extension information. Number of people attending workshop/presentations and/or accessing the web site for information about wind energy. Number of people attending workshops/presentations on the pros and cons of various types of bio-fuels or alternative energy sources. Development of educational guides/publications on current energy issues. Workshops/seminars on quantifying the impact of energy generation or savings as it relates to the bottom line of their primary business function. Number of people gathering information from the Extension Energy web site. Number of people attending workshops/presentations or using the web site on public policy issues related to energy generation and transmission. Number of people participating in workshops/presentations on land leasing issues related to energy generation.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Energy and Agriculture (reservation and non-reservation) Participants will understand energy alternatives and how to use a framework to evaluate energy opportunities. Participants will be able to make a sound decision on becoming involved with energy generation. (wind, solar, bio-diesel, bio-mass, oilseed production/processing, ethanol etc.). Participants will use energy saving tillage system practices.
2	Residential Energy: Homeowners will apply home energy savings/conservation practices. Home builders, contractors and crews will use weatherization techniques in constructing homes. Participants will become aware of the Camelina Composite Pellet Fuels for home stoves. Participants will apply common methods to save home energy to new or existing homes. Participants will use high performance, resource efficient building materials and construction techniques in remodeling and new construction. Participants will increase their purchase of Energy Star products and appliances resulting in an energy savings of at least 30% annually per appliance. Participants will experience an energy savings due to weatherizing and remodeling existing homes (13-65% energy savings per household).
3	Renewable/Alternative Energy: Landowners/citizens will have tools to make decisions about becoming involved with renewable/alternative energy opportunities. Participants will understand the public policy issues related to wind and other alternative energy generation and transmission. Participants will understand land leasing issues related to wind and other alternative energy generation and transmission. Landowners/citizens will have tools to make decisions about renewable/alternative energy opportunities.

Outcome #1

1. Outcome Measures

Energy and Agriculture (reservation and non-reservation) Participants will understand energy alternatives and how to use a framework to evaluate energy opportunities. Participants will be able to make a sound decision on becoming involved with energy generation. (wind, solar, bio-diesel, bio-mass, oilseed production/processing, ethanol etc.). Participants will use energy saving tillage system practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	150

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

E3: Economy, Energy and Environment is a coordinated federal and local technical assistance framework that helps communities adapt and thrive in a new business era focused on sustainability by providing customized, hands-on assessments of production processes. Montana is leading the nation by piloting this framework with agricultural producers to reduce energy consumption, increase productivity, minimize their carbon footprint, prevent pollution, and drive innovation. Peaks to Prairies, a program within MSU's Extension Housing and Environmental Health Department, was awarded an EPA grant to apply the E3 framework by leveraging strategic partnerships to develop and test the E3 approach in Montana agriculture.

What has been done

Six MSU Extension Agents who have established trust relationships within their counties have been selected and trained to conduct an E3 assessment with local producers. The assessment identifies ways to reduce energy consumption, increase productivity, minimize carbon footprint, and drive innovation. The goal is to ensure that by participating in E3, agricultural producers are in the best position possible to maximize available financial opportunities in order 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.

Results

This program is in its early stages so qualitative impact data related to assessments and follow-up actions are not yet available. Once ready, results will be posted at www.e3.peakstoprairies.org. Currently the biggest impact is the strengthened partnerships among agencies. The Natural

Resource Conservation Services (NRCS) offers technical tools, such as the Cropland Energy Estimator, that are important in calculating E3 metrics; and funding sources such as the Environmental Quality Incentives Program (ECIP) to help producers with costs of implementation. Rural Development (RD) has opportunities including the Renewable Energy for America (REAP) program, value-added producer grants and loan guarantee programs. The Farm Services Agency (FSA) offers funding such as the Guaranteed Conservation Loan. The Montana Manufacturing Extension Center located at MSU provides assistance in setting up food processing and other value-added plants and manufacturing processes that can lead to substantial environmental and economic benefits. Building this network around a common goal will have long-term and far-reaching impacts for producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

Residential Energy: Homeowners will apply home energy savings/conservation practices. Home builders, contractors and crews will use weatherization techniques in constructing homes. Participants will become aware of the Camelina Composite Pellet Fuels for home stoves. Participants will apply common methods to save home energy to new or existing homes. Participants will use high performance, resource efficient building materials and construction techniques in remodeling and new construction. Participants will increase their purchase of Energy Star products and appliances resulting in an energy savings of at least 30% annually per appliance. Participants will experience an energy savings due to weatherizing and remodeling existing homes (13-65% energy savings per household).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	179

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Consumers are interested in reducing consumption, using more efficient energy sources and learning the latest technologies and solutions for being good stewards of limited resources.

Finding reliable, science-based information can be a challenge.

What has been done

In 2010, the Montana Weatherization Training Center, in partnership with Exxon Mobil and National Community Action Foundation, created WxTV, a national weatherization training show that uses a blend of expert advice, how-to techniques, innovation and reality TV to create entertainment-based learning. The show has since expanded to cover all aspects of energy-efficient living. There are more than 90 eLearning modules for trainers. In 2013, 12 new episodes were produced.

Results

WxTV had from 4,000-5,000 monthly viewers and over 200,000 unique views on WxTV and 113,000 on YouTube. Being available anytime, anywhere has made it a useful tool for weatherization professionals and home handymen.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
605	Natural Resource and Environmental Economics

Outcome #3

1. Outcome Measures

Renewable/Alternative Energy: Landowners/citizens will have tools to make decisions about becoming involved with renewable/alternative energy opportunities. Participants will understand the public policy issues related to wind and other alternative energy generation and transmission. Participants will understand land leasing issues related to wind and other alternative energy generation and transmission. Landowners/citizens will have tools to make decisions about renewable/alternative energy opportunities.

Not Reporting on this Outcome Measure

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

V(I). Planned Program (Evaluation Studies)

Evaluation Results

E3 in Montana Agriculture has made great strides in bringing together a network of organizations with resources for producers who are serious about limiting agriculture's footprint while increasing productivity, profit and innovation. Though in its early stages, E3 has all the pieces to 1) increase opportunities for economic advancement and 2) preserve, protect and enhance the environment.

The Montana Weatherization Training Center and certification program was established in 1991 in partnership with the Montana Department of Public Health and Human Services and employs 6 people focused on reducing energy costs for low-income families, particularly the elderly, people with disabilities and children by improving the energy efficiency of their homes while ensuring their health and safety. The goal of the Weatherization Training Center is to train the professionals who are weatherizing homes every day. Working closely with Montana's Human Resource Development Councils and Tribal associates, the Center focuses on safe, efficient, cutting-edge techniques to address the health, safety, and energy efficiency issues present in low-income housing.

Key Items of Evaluation

The best impact of E3 in Montana Agriculture so far is the network of partners working together on behalf of Montana's producers. The Natural Resource Conservation Services (NRCS) offers technical tools, such as the Cropland Energy Estimator, that are important in calculating E3 metrics; and funding sources such as the Environmental Quality Incentives Program (EQIP) to help producers with costs of implementation. Rural Development (RD) has opportunities including the Renewable Energy for America (REAP) program, value-added producer grants and loan guarantee programs. As an example, the Farm Services Agency (FSA) offers funding such as the Guaranteed Conservation Loan. The Montana Manufacturing Extension Center located at MSU provides assistance in setting up food processing and other value-added plants and manufacturing processes that can lead to substantial environmental and economic benefits. Building this network around a common goal will have long-term and far-reaching impacts for producers. Once E3 analyzes individual situations for specific producers, they will record specific impacts. These will be posted at www.e3.peakstoprairies.org.

Residential energy is an ongoing focus for MSU Extension. The Weatherization Training Center staff remains in daily communication with ten Montana Human Resource Development Councils (HRDC) and two Tribes having weatherization and Low-Income Home Energy Assistance Program (LIEAP) as well as numerous contractors, businesses and homeowners on such topics as: scheduling training sessions, registration for training, transcript requests, test results, weatherization technical questions and standards interpretation, management issues, consumer education materials, training and reference materials, and equipment questions among others.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Food Safety

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	55%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	35%			
806	Youth Development	10%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	3.6	0.0	0.0	0.0
Actual Paid Professional	1.2	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
14362	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
87028	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct train the trainer workshops, clientele workshops/clinics aimed at food safety, food preservation classes and meeting beef quality assurance standards
- Facilitate meetings with partners, organizations and agencies (local and state)
- Conduct interactive video conferences, web based deliveries etc.

2. Brief description of the target audience

- Restaurant and other Food Service Managers/Employees; volunteers at food serving operations.
- Home food preservers and people involved with food preparation
- Livestock producers
- Commodity Associations

3. How was eXtension used?

Extension professionals and clientele use eXtension as a resource for specific information and educational materials.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2252	88540	1120	13746

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

Patent Applications Submitted

Year: 2013
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Food Safety: Provide train the trainer sessions for County Extension Agents so they can conduct food safety education classes for audiences such as county sanitarians, school food service personnel, volunteers, food banks etc. (Number of people attending) Make resources available for individual study - web, publications etc.. (Number distributed.)

Year	Actual
2013	2340

Output #2

Output Measure

- Food Preservation: Provide training and updates to County Extension Agents so they can conduct training/education on food preservation to home food preservers. (number of people attending) Prepare publications/MontGuides on Food Preservation practices and number distributed. People using canners will have the pressure gauges tested. (number being tested)

Year	Actual
2013	1997

Output #3

Output Measure

- Beef Quality Assurance (BQA) Number of people attending beef quality assurance, production and marketing programs. Number of classes, demonstrations and tours provided related to BQA. Number of people participating on interactive video programs, hits on the web site, publications distributed etc. Number of people participating in workshops about the Steer of Merit Program. Number of carcasses receiving Steer of Merit Certificates.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Food Safety People working in the food industry will use accepted food safety practices as they handle food, e.g., storing and thawing foods properly, hand washing, controlling time and temperature, ensuring proper personal hygiene, prevent cross-contamination, proper cleaning and sanitizing, etc. There will be a decline in the economic and health consequences of food borne illnesses
2	Food Preservation: Home food preservers will use accepted preservation practices in their home processes. There will be a decline in the economic and health consequences of food borne illnesses and spoilage. Master Food Reservers will answer food preservative questions after being trained by Extension.
3	Beef Quality Assurance (BQA) Ranchers/producers will adhere to BQA protocols for raising beef. Ranchers/producers will become BQA certified. Consumers are assured of a readily available and wholesome supply of beef. Youth producers will raise beef to become Steer of Merit Certified

Outcome #1

1. Outcome Measures

Food Safety People working in the food industry will use accepted food safety practices as they handle food, e.g., storing and thawing foods properly, hand washing, controlling time and temperature, ensuring proper personal hygiene, prevent cross-contamination, proper cleaning and sanitizing, etc. There will be a decline in the economic and health consequences of food borne illnesses

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2340

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Each year there are over 100 million documented cases of food-borne illness, from which 15,000 people die. The financial costs of food-borne illness are tremendous; public tax money must cover lost wages, health care and investigative costs. Basic food safety training on controlling time and temperature when handling food, 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 and trade, and health promotion.

What has been done

Three levels of training were provided to a total of 2340 people over 488 total client hours. Level 1 training provides food service workers with the knowledge and skills to earn a certificate of completion for Basic Food Safety Training. 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's 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 professionals who are interested in providing food safety training. The Head Start Program on the Fort Peck Reservation contacted Extension to provide training to 39 volunteers and staff and to answer questions and respond to concerns related to food safety throughout the year.

Results

Results of food safety training were measured using pre- and post-surveys. In all classes, 100 percent of adults and students reported they learned something about food safety. 98 percent who completed the Level 2 training classes passed the exam and received their ServSafe Food Protection Manager Certification. In one county a high school teacher conducted site visits to food establishments where students had completed ServSafe Food Protection Manager Certification training, and documented that all were following safe food handling skills. These high school students, with the Manager Certificate, have an advantage when applying for jobs in the food service industry. Of those participating in the Fort Peck training, an overall increase in knowledge of 17% was recorded. Ninety-four percent indicated they learned something new and would use the training in their work.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
806	Youth Development

Outcome #2

1. Outcome Measures

Food Preservation: Home food preservers will use accepted preservation practices in their home processes. There will be a decline in the economic and health consequences of food borne illnesses and spoilage. Master Food Reservers will answer food preservative questions after being trained by Extension.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1997

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 and the current economic downfall have increased interest in home food preservation as an important and popular cultural activity. Recent national surveys reveal a high percentage of

home food processors are using practices that put them at high risk for food-borne illness and economic losses due to food spoilage. MSU Extension and CREES-USDA have long been recognized as credible sources for science-based recommendations for home food preservation. As a result, a renewed effort to provide enhanced programming for home food preservers is necessary.

What has been done

Extension utilizes many strategies for addressing the need for safe food preservation information and skills. Personal communication with consumers via telephone, email and face-to-face has helped deliver targeted answers on specific needs. MontGuides are distributed at county fairs, health fairs, worksite wellness programs and other educational events, making them the most widely distributed of all MontGuides. Testing the accuracy of pressure canners is vitally important for assuring safely preserved food. Many offices provide this service for clients. Providing information and/or hands-on workshops allows consumers to learn comprehensive information and skills, and presents the opportunity to practice these skills under the mentoring of the agent.

Results

All participants receiving Extension instruction received information about the principles and science of food borne illnesses and food preservation methods and how to apply those principles to safely preserve food by methods including boiling water, canning, pressure canning, pickling, freezing and drying. Sixty percent indicated they learned at least two ways to improve their preservation techniques. Even experienced canners indicated they learned something new. Offices that tested pressure gauges found many needed to be replaced or adjusted. In one county, 12 of 21 were faulty and six more needed to be adjusted. Broad-reaching impacts include 36 agents receiving certification in the Master Food Preservation program provided by national expert, Dr. Elizabeth Address. Certification enables agents to train volunteers to become Master Food Preservers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
806	Youth Development

Outcome #3

1. Outcome Measures

Beef Quality Assurance (BQA) Ranchers/producers will adhere to BQA protocols for raising beef. Ranchers/producers will become BQA certified. Consumers are assured of a readily available and wholesome supply of beef. Youth producers will raise beef to become Steer of Merit Certified

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

MontGuides related to food safety and food preservation are the most commonly requested of all categories of MontGuides. They are widely distributed at Health Fairs, Farmers Market's, schools and community events and are utilized in Master Gardener programs. Because the files can be downloaded for free and copies are frequently made, it is difficult to know exactly how many are utilized in a given year. Many county offices indicate that they receive questions via phone calls and drop-ins on an almost daily basis. The fact that many Montanans know Extension offers the latest science-based, best-practice information related to these areas, is a testament to 100 years of work in this field, and the persistence of agents who use radio, newspaper ads, newsletters and blogs to deliver information proactively. From the first days of Extension in Montana, agents were called upon to answer questions and provide training in food safety and preservation. Many businesses who sell pressure gauges and other equipment refer consumers new to food preservation to Extension to begin. In almost any community, you will quickly be directed to Extension for assistance in this area.

Because many encounters in this program area are informal, there is limited data, except as related to ServSafe Training classes where pre- and post- surveys are completed. That data indicates:

- 100 percent of adults and students learned something new about food safety
- 98 percent who completed the Level 2 training classes passed the exam and received their ServSafe Food Protection Manager Certification
 - In one county a high school teacher conducted site visits to food establishments where students had completed ServSafe Food Protection Manager Certification training, and documented that all were following safe food handling skills.
 - High school students with the Manager certificate have an advantage when applying for jobs in the food service industry.

Classes and formal training related to food preservation reveal:

- Participants receive Information related to the principles and science behind food borne illnesses and food preservation methods.

- Participants learn how to apply those principles safely to preserve foods through boiling water, canning, pressure canning, pickling, freezing and/or drying.
- 60% learned at least two new ways to improve their food preservation techniques.

In one community a ServSafe food safety class was offered to the High School Consumer Science class. The Program was so well received that the school has decided to offer the program annually to junior students.

Master Food Preservation training was conducted by Dr. Elizabeth Andress who was a speaker at the Montana's Annual Conference. Those certified will now be able to train additional trainers and further expand the program.

Finally, Beef Quality Assurance is not being reported here as it was covered under Livestock Programs and Youth Development. Quality Assurance Training is required for all youth in Market Livestock programs. Extension Beef Specialists work regularly with producers to insure the highest quality and safety of Montana beef.

Key Items of Evaluation

Pre- and post- survey data was used to evaluate this program. In addition, anecdotal evidence was used since much of the Extension work around preservation is based on drop-in/call-in experiences with individual clients. Many agents spend time each day answering questions and testing pressure gauges. They are stopped in the grocery store and at the county fair to share expertise. Food safety and preservation related MontGuides are collectively the most requested publications from Extension.

FOOD SAFETY

- 100 percent of youth indicated post-training that they understood how their personal hygiene and touching surfaces while preparing food was related to transfer of germs.
- 90 percent of adults in ServSafe Training learned the importance of controlling time and temperature when handling food, ensuring proper personal hygiene, preventing cross-contamination and proper cleaning and sanitizing.
- 90 percent indicated they would use their new knowledge to improve safety practices

FOOD PRESERVATION

- MontGuides related to food preservation are among the most requested.
 - Agents report having drop-ins and related phone calls on a nearly daily basis
- One high school will be offering Level 1 ServSafe Food Safety Class annually to all junior students enrolled in Consumer Science class.

In one county, the FCS agent worked with the Lion's Club to implement changes to their food handling practices including having food handlers wear gloves and changing how they bagged cotton candy at their Concession Booth. For their help the Pondera County Shooting Sports program received a \$1,000 donation.

One youth was hired by a local caterer following his Level 1 safety certification.