

# 2012 Montana State University Extension Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

I am pleased to present the 2012 Montana State University Extension Annual Report. It is focused on "Mountains and Minds: Learners and Leaders" and illustrates the breadth and depth of Extension educational and outreach programming efforts across the state. Extension fulfills the Land Grant University mission of "taking the university to the people". This report is more than just numbers and program outcomes. It highlights how Extension's statewide network responds quickly to new and emerging needs and strengthens existing resources through partnerships that support outreach and engagement in local communities.

Extension expertise meets public needs at the local level through the involvement of volunteers, stakeholders and advisory committees who provide input to guide and support diverse programmatic areas. These roots in local communities help Extension understand needs and put university expertise and connections where they can make a difference -both in people's lives and their livelihoods. As the goal statements and outcomes throughout this annual report attest, the challenges and opportunities in Montana today are endless and changing. Increasingly, Extension serves a growing, diverse constituency with fewer resources by utilizing methods that are timely, relevant and cost effective.

Program areas included in this report include:

1. Childhood Obesity, Nutrition and Healthy Lifestyles programs focus on educating families by selecting nutritious foods and promoting exercise for achieving healthy weight and body tone, how to spend their food dollars wisely by pre-planning; and to take advantage of medical screening opportunities.
2. Youth Development centers on positive youth development and uses hands-on methods for engaging young people in activities and experiences focused on citizenship, healthy living and science. Life skills enhanced through participation lead to youth who are competent, confident, caring and with character leading to contribution to society.
3. Global Food Security and Hunger, Ag Sustainability and Profitability represent issues that are extremely important to the state since agriculture is the number one industry. Small grains and livestock represent the bulk of the industry and require staying up-to-date on basic and applied research as well as consumer and industry needs. Agriculture is "risky business" that involves understanding and applying many disciplines to be successful
4. Family Issues, Resources and Environments address areas of great need for Montana families including Estate Planning, living with chronic diseases, especially as a caregiver, adjusting to unexpected demands such as grandparents raising their grandchildren and making decisions about housing in economically challenging times.
5. Community and Economic Development programs assist communities in addressing issues of safety, population growth and decline, poverty and leadership development. Competence of local government officials is a priority since so many citizens are asked or elected to fill positions that require them to make decisions for which they are not fully prepared. This is especially true in rural areas of the state.
6. Climate Change, Natural Resources and Environment programs are particularly sensitive to environmental conditions. Forests and rangelands as well as water quality and quantity are natural

resources that agricultural enterprises and small acreage landowners depend on. Changes in these and other natural resources are felt in businesses and living conditions for communities and families across the state.

7. Sustainable Energy education helps agriculture and home owners evaluate alternative energy opportunities that might be appropriate for their respective situations. Understanding the potential of renewable and alternative energy must be appropriate in order for Extension to meet this educational need.

8. Food Safety education trains perspective or current food service workers safe food handling practices through the multi-level ServSafe program. Additionally, food preservation is on the rise, so "best practices" for canning/freezing foods safely is in high demand.

As Montana looks towards tomorrow, Montana State University Extension is a visible and strategic partner in the new MSU Strategic Plan that integrates learning, discovery and engagement. Extension's newly created strategic plan aligns with the overall themes of the new University plan while focusing on specific programming areas which have been reorganized in the 2014 Plan of Work. While not significantly changing in substance, the new framework creates a simplified, yet robust plan for moving into the next 5 years. Program areas that will be reported next year include:

1. Agriculture
2. Energy and Natural Resources
3. Youth and Adult Development
4. Healthy Living, Food Safety and Nutrition
5. Housing and Built Environments
6. Community Development

The true meaning of Extension is to reach out and extend resources, solving public needs with university research and knowledge through non-formal, non-credit education. A statewide network of county and reservation Extension offices, supported by campus based faculty and staff, remains committed to serving citizens and organizations throughout the state. While the program overviews and highlights in this annual report reflect just a portion of the many accomplishments during 2012, it does adequately portray the dedicated and talented individuals who are the driving force of Extension. I am pleased to share these accomplishments with you.

**Total Actual Amount of professional FTEs/SYs for this State**

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	40.7	0.0	0.0	0.0
Actual	33.9	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 Annual Report was reviewed by the Merit Review Committee. The committee is composed of Jim DeBree, Jim Knight and Charles Rust.

The Merit Review Process provided valuable information to improve Extension's programs, while also affirming that Extension's work throughout Montana in 2012 was extensive, efficient and impactful. The comments include observations for the program areas as follows:

### Childhood Obesity, Nutrition and Healthy Lifestyles:

- Need is critical and growing; end results reflect relevant and effective changes in behavior of local residents.
- Surveying participants at the Health Fairs would be valuable so that behaviour changes could be quantified. This will be considered for 2013.
- As obesity increases and participation in SNAP-ed grows, more resources will be necessary

### Youth Development:

- The 4-H program is a proven way to ensure tomorrow's adults have an edge in becoming confident, capable and involved citizens.
- This program is truly a flagship for Montana Extension
- The Junior Ag Loan Program and military partnerships are cutting edge and the positive results easily documented.

### Global Food Security, Hunger, Ag Sustainability and Profitability:

- These programs have traditional roots but continue to evolve into important and relevant programs addressing complex issues in today's society.
- You are to be complimented for maintaining relevancy utilizing a functional delivery system that clearly documents educational changes with participants.

### Family Issues, Resources and Environments

- Having a waiting list indicates a much-needed program. It would be helpful to develop strategies to increase program availability to meet the need.
- Impacts seem to be impressive reporting in relative changes

### Community Development

- Overall the programs are impressive and address important priorities
- You seem to be in sync with the changing trends in population demographics

### Climate Change- Natural Resources and the Environment:

- This report indicates that Extension Forestry is an excellent program offering unique educational opportunities not available elsewhere.
- The program components are well planned and delivered in an efficient manner. You are making excellent use of numerous partnerships.
- The water quality program addresses the growing concern related to groundwater contamination and use.

### Sustainable Energy

- It is recommended that more sustainable energy programs include efforts to measure impacts rather than just outputs.
- The Extension Sustainable Energy program is doing an exceptional job of addressing a broad spectrum of educational needs related to energy.

## Food Safety

- The food preservation program addresses the needs of a growing number of Montanans who make food preservation an important and popular cultural activity.
- I believe you could have a stronger presence in "Farmers Markets". These seem to be growing in popularity and would provide a venue for Extension to offer specialized educational programs.

Overall comments:

- The Extension model is still by far the best and clearly demonstrates how you are able to stretch limited resources that favorably impact diverse audiences.
- I have found the educational programs to be relevant to the needs of Montanans and conducted in a manner to achieve excellent results.

### III. Stakeholder Input

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

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

#### Brief explanation.

Personal contact has been the most successful way for Extension to gain stakeholder participation. The clientele who use Extension regularly are willing to provide input when asked. People who attend programs, or who are referrals from other agencies, are asked about which issues are important to them, their families and communities.

While less effective, radio, newsletters, newspapers and electronic distribution lists are 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 often are not regular clientele of Extension. This kind of conversation reveals concerns/issues that might not be heard in the usual process. When common issues surface through these methods and the advisory process, they are considered in the programming process.

#### 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.**

Membership on county advisory groups is generally achieved by sending an invitation to traditional stakeholder groups requesting the name of an individual who can represent their views and provide input for Extension programming. A similar invitation is sent to non-traditional groups.

However, in these cases, personal contact is made to explain the role of the representative. During programs targeted at certain audiences (eg EFNEP, SNAP-ed), attendees are asked directly for input or may be asked to serve on a specific advisory committee for the program area.

Membership on the MEAC (Montana Extension Advisory Council) 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 3 year term.

**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 the regular clientele of MSU Extension. While they are contacted on a less formal basis, they are systematically asked for input into program priorities. 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 source of input is from MACo (Montana Association of Counties). 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 gathers stakeholder input from county commissioners.

Surveys are often used to gather information at the local or state level. They 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 his/her office. At other times, and when issues are determined to be statewide, specialists will become more involved with program development and direction than if they are responding to a single request for information.

The statewide advisory committee (Montana Extension Advisory Council ) meets twice a year, once on campus and once out in the state. The campus meeting is focused on campus based activities and the educational outreach of specialists. The off-campus meeting focuses on programming at the county level. The Director of Extension also provides a system wide update and discusses program priorities and funding.

#### **Brief Explanation of what you learned from your Stakeholders**

Montana stakeholders indicate that they are concerned about similar issues 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. 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

<b>1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)</b>			
<b>Extension</b>		<b>Research</b>	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
2597388	0	0	0

<b>2. Totaled Actual dollars from Planned Programs Inputs</b>				
<b>Extension</b>			<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	543304	0	0	0
<b>Actual Matching</b>	0	0	0	0
<b>Actual All Other</b>	1008237	0	0	0
<b>Total Actual Expended</b>	1551541	0	0	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous</b>				
<b>Carryover</b>	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	Sustainable Energy - Family Issues, Resources and Environments
5	Sustainable Energy - 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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	2.6	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
78963	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
94445	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

**2. Brief description of the target audience**

- Low income adults and children under the age of 19
- Low income youth, ages 5-12
- Low income adults 18 and older
- 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

**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**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	35104	333000	6990	19100

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	3	0	0

**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.

<b>Year</b>	<b>Actual</b>
2012	8195

**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.

<b>Year</b>	<b>Actual</b>
2012	672

**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.

<b>Year</b>	<b>Actual</b>
2012	33077

**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.

<b>Year</b>	<b>Actual</b>
2012	300

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	EFNEP/FSNP: 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.
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/FSNP: 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**

<b>Year</b>	<b>Actual</b>
2012	57905

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Food insecurity and poverty continue to be a problem in Montana. Having nutritious, fresh and healthy foods available is a challenge with the long distances to grocery stores in rural areas. Both hunger and obesity are serious public health problems and sometimes co-exist in the same families or individuals. With fewer resources to buy food or to obtain health care or other preventative or remedial interventions, people with limited incomes are particularly susceptible to long term effects from hunger/food insecurity, obesity, or both. Lack of access to and knowledge about adequate nutritious food can result in weight gain and other serious health issues.

#### **What has been done**

The Expanded Food and Nutrition Program (EFNEP) and the Supplemental Nutrition Assistance Program (SNAP-Ed) are focused on improving nutrition and eating habits for limited resource families. Information is provided to families through individual and group meetings where participants learn to prepare healthy foods (snacks and meals), extend their food dollar through good shopping practices, manage their food dollar wisely and increase their physical activity. Educators reach low income youth in Title I schools and out-of-school programs and adults in both cities and rural areas.

**Results**

Adults completing the EFNEP lesson series reported as follows: 77% increased knowledge in two or more nutrition practices (planning nutritious meals, reading nutrition labels), 71% increased knowledge in food resource management strategies (making a grocery list, comparing prices) and 41% increased knowledge in food safety practices (thawing and storing food, hand washing). Follow up surveys indicated that 28% were now using a grocery list and 55% of youth said that they were eating more fruits and vegetables. SNAP youth graduates (73%) indicated that they were trying a wider variety of healthy foods. SNAP adults indicated they were using a shopping list (49%) and eating more fruits, vegetables and whole grains.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	33077

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Chronic diseases are the leading cause of death, illness and disability and account for approximately 70% of health related costs for Montanans. Research shows that a healthy lifestyle can prevent or delay onset of these diseases. Healthy lifestyles include making good health choices, becoming physically active and monitoring and screening for early detection of health issues and are the result of understanding and incorporating all aspects of well-being to include physical, emotional, economic, environmental and other factors. Educational programs

are needed to help people learn how to reduce their risk of heart attacks, cancer, strokes, high blood pressure, diabetes and obesity.

**What has been done**

Dozens of workshops dealing with critical healthy lifestyle topics are taught regularly in counties throughout the state. These include, Making a Good Brain Great, Sun Safety, Gluten Free Cooking, Think Your Drink: Reducing Consumption of Embedded Sugars, Stealth Health and more. A major addition to healthy living programs offered through Extension are Blood Pressure and Cholesterol Reduction programs funded through mini-grants from MT DPHHS Cardiovascular Health Program. Agents have administered blood pressure screenings and provided related information/education in settings ranging from Producer meetings to County Health Fairs to 4-H and Homemakers events.

**Results**

Participants of Extension Healthy Lifestyles classes report using new skills ranging from identifying and preparing inexpensive cuts of meats, to using unit pricing to save money at the grocery store, to growing vegetables at home with all leading to increased healthy food consumption. Participants of the new Cardiovascular Health Program reported that screenings allowed family physicians to incorporate more direct and useful health plans without additional costs. One woman reported her pleasure with checking her blood pressure as she had been having trouble sleeping and other physical complaints, but never thought to check blood pressure. Because of this screening, she worked with her health care provider and has it under control.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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 Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	672

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Women start to show decline in muscle mass beginning at age 30. Research shows an increasing number of older Americans are living a sedentary lifestyle which increases their risk of developing chronic diseases such as diabetes, heart disease, osteoporosis and arthritis. The Strong Women™ program was developed by TUFTS University as a strength training program to be conducted through County Extension Offices. In Montana, the program is especially targeted at under-served women: those living in the most rural areas, lower-income, and isolated women with chronic illness.

#### What has been done

Strong Women TM programs are designed for women to increase muscle mass by strength training for 2-3 sessions per week. Counties offer the program to both male and female adults throughout the year with introductory classes held every 12 weeks to introduce new people to the group. These trainings are directed by an Extension specialist who has been certified as one of 14 Ambassadors to teach Strong Women TM 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 for older women as well.

#### Results

The Strong Women TM program continues to be highly utilized with many counties reporting waiting lists. One hundred percent of participants who complete the training report positive, healthy lifestyle changes including establishing a regular exercise program, an increase in healthy food selections, improvement of arthritis symptoms, improvement of sleep and more energy. One survey showed that 85% of participants increased 8 indicators of strength and flexibility between 10% and 81% from the first class to the last class. Practical applications of this increased strength lead to lifestyle improvements such as being able to lift a carry-on bag overhead during travel, being able to work in the garden and greater ease and increased ability in climbing stairs, lifting objects, sitting down and bending over.

### 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 Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	300

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The increasing prevalence of childhood overweight 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 an obesity prevention curriculum that will change the behaviors of parents and children thereby significantly reducing the likelihood of children becoming overweight. Throughout the course, parents will improve their abilities to encourage nutritious eating and physical activity and provide a healthier home environment for their children.

**What has been done**

Following a pilot test in six counties in 2010-2011, parents of 4-H youth in 21 counties (37.5% of all Montana counties) participated in this 8 month research and outreach program in 2011-2012. From September 2011 to May of 2012, 11 counties (experimental group) offered ten 90-minute interactive, action-packed sessions led by a facilitator. These sessions focused on providing important nutrition, physical activity, and body image information, as well as parenting and family communication skills to improve preteen and family health. Parents of early teen 4-H students in 10 additional counties (control group) received healthy living information via the mail.

**Results**

Participants in both groups reported an increase in active parenting, increase in children having a more positive body image, increase in food and nutrition knowledge, increase in physical activity, and increase in the number of days per week their child eats breakfast, with the experimental group in each case making larger gains than the control group. Parents in the experimental group reported an increase in daily vegetable consumption by children. Children in the experimental group reported less dissatisfaction with their bodies, while the control group reported more dissatisfaction. Children in the experimental group described their weight as somewhat decreased after the program, while the control group described their weight as somewhat increased. Children in both groups reported increasing the number of days they were physically active for at least 60 minutes, with the experimental group reporting greater improvement.

**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

#### **V(H). Planned Program (External Factors)**

##### **External factors which affected outcomes**

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

##### **Brief Explanation**

#### **V(I). Planned Program (Evaluation Studies)**

##### **Evaluation Results**

Montana State University Extension successfully reached over 90,000 people, over 10% of the state's total population, either directly or indirectly, with information and educational programs related to childhood obesity, nutrition and healthy lifestyles. This program's ultimate goal was reducing obesity among children and adults by changing attitudes related to food, physical fitness/activity and body image. This objective was reached by working directly with low-income families (guiding parents in how to improve the overall health of the family through role modeling and positively working with their children), helping youth to be both knowledgeable and accountable about their health choices and targeting education and programming toward women (especially in rural areas and those over age 30).

As noted in the 2012 POW, the program assumes that a health-centered (rather than weight-centered) approach to well-being, will lead people to developing lifestyle habits rather than focusing on a specific body size or shape. Low-income families were directly reached through MSU Extension Nutrition Education Programs: Buy. Eat. Live. Better (which includes SNAP-Ed and EFNEP); as well as through the 4-Health program. Similar to the national EFNEP pre/post-education surveys, Montana participants in MSU Extension Nutrition Education indicated vastly improved knowledge and skills related to nutrition practices, stretching food dollars, handling food safely and increasing physical activity. The smaller study groups involved in the 4-Health research project demonstrated that while more solid gains were made when direct one-on-one interaction was involved, even monthly newsletters were effective in improving knowledge and changing attitudes related to healthy living. This would seem to suggest that a web site, newly created by the Buy. Eat. Live. Better. program ([www.buyeatlivebetter.org](http://www.buyeatlivebetter.org)) may encourage additional improvements in these areas.

Another program that was utilized by MSU Extension in 2012 is the Strong Women program. Surveys from participants show that 100 percent of those who complete the program increase strength and flexibility; allowing them to have more active lifestyles. In

addition, an unintended consequence is reported to be the friendships and camaraderie that is built from these classes. These relationships can be effective in reducing depression and inactivity that occurs with isolation.

Finally, an extremely valuable addition to the Extension work in this area in 2012 came from a partnership with the Montana Department of Public Health and Human Services. Through a grant, agents around the state participated in the Cardiovascular Health program, administering blood pressure screenings and providing health related information and education directly to more than 13,000 Montanans. Agents were able to provide education materials specifically to people whose screenings showed risk factors. Individuals reported that because of the screenings they followed-up with their medical professionals to prevent serious health conditions from getting worse. This program will continue in 2013.

### **Key Items of Evaluation**

Pre and post survey data was used to evaluate this program.  
Results are as follows:

#### **EFNEP/SNAP-Ed**

77% of EFNEP adults reported increased knowledge in two or more nutrition practices (i.e. planning nutritious meals, reading nutrition labels)

71% of EFNEP adults increased knowledge in food resource management strategies (i.e. making a grocery list, comparing prices)

41% of EFNEP adults increased knowledge in food safety practices (i.e. thawing and storing food, hand-washing)

28% of EFNEP adults indicated in a follow-up survey that they were using a grocery list

55% of EFNEP youth indicated in follow-up survey that they were eating more fruits and vegetables

73% of SNAP-Ed youth graduates indicated they were trying a wider variety of healthy foods

49% of SNAP-Ed adults indicated they were using a shopping list and eating more fruits and vegetables

#### **Healthy Lifestyles**

Other skills reported to have been learned by agents teaching healthy living courses included, identifying and preparing inexpensive cuts of meat, using unit pricing to save money at the grocery store and growing vegetables at home.

13,589 adults received blood pressure screenings at various events and locations statewide, as well as follow up educational materials

#### **Strong Women**

Of 672 women who completed the Strong Women program through MSU Extension, 100% indicated they improved their strength and flexibility

#### **4-Health**

The 4-Health research program continued with its first year of full programming following a pilot season in 2022. The experimental group received ten 90-minute interactive education sessions while the control group received healthy-living information via email.

Results as follows:

Both the experimental and control groups reported an increase (in all cases the experimental group had a greater increase) in:

Active parenting

Children having a more positive body image

Food and nutrition knowledge, increase in physical activity

Increase in the number of days the family ate breakfast

Parents in the experimental group also reported that children were eating more fruits and vegetables

Children in the experimental group reported less dissatisfaction with their body image, while children in the control group reported more dissatisfaction with their body image.

Children in the experimental group reported their weight as somewhat decreased after the program

Children in the control group reported their weight as somewhat increased after the program

Children in both groups reported increasing the number of days they were active for at least 60 minutes (with the children in the experimental group reporting a greater increase).

**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
307	Animal Management Systems	10%			
801	Individual and Family Resource Management	5%			
802	Human Development and Family Well-Being	15%			
806	Youth Development	70%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	0.0	0.0	0.0
Actual Paid Professional	9.2	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
216999	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
181641	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 youth involved in 4-H  
 Adult volunteers involved in Youth Development Work: 4-H program and other group volunteers.  
 Professionals involved in Youth Work: agencies, schools and organization professionals  
 School administration 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 for a vast number of programs and situations

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	3384	226306	18647	79496

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	4	0	0

**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, clinics, seminars and club meetings.

<b>Year</b>	<b>Actual</b>
2012	22031

**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.

<b>Year</b>	<b>Actual</b>
2012	5691

**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.

<b>Year</b>	<b>Actual</b>
2012	15

**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.

<b>Year</b>	<b>Actual</b>
2012	268

**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 4-H councils in Montana will adopt the financial management and review guidelines. 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; Communications/Public Speaking: Through their involvement in 4-H: 50% of the members will participate in communication/public speaking activities; know how to find information for a speech or talk; 60% can select a topic, speak loud enough to be heard and organize thoughts necessary to give a speech or talk.
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**

<b>Year</b>	<b>Actual</b>
2012	22031

### **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. This year Montana 4-H focused on the life skill of goal setting in project work and activities. 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. Popular 4-H projects include photography, dog, horse, livestock, shooting sports, food and nutrition, technology and engineering. MSU Extension actively recruits and trains caring adults to mentor youth.

#### **Results**

More than 10,000 youth participate annually in community 4-H clubs with project goals of demonstrating their knowledge and skill through presentations and exhibits. In an evaluation of

youth who participated in county fairs and worked on projects, 75% of these youth set goals in writing, developed a plan to achieve them, asked for help as needed and evaluated their progress and success.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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 4-H councils in Montana will adopt the financial management and review guidelines. 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
2012	5691

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Volunteers are essential to the sustainability and growth of the 4-H program. To involve volunteers successfully, volunteer managers should be concerned with the identification, selection, orientation, training, utilization, recognition and evaluation of those volunteers.

Additionally, youth and adult leadership development programs are necessary to help these volunteers and volunteer managers successfully extend into the community, county and state.

**What has been done**

Extension agents and volunteers received one-on-one discussion and group training during New Agent Orientation, Montana 4-H Agent Update, Extension Annual Conference, Ambassador Fall Training, District 4-H meetings, Leaders College, Rec Lab, the Montana 4-H Leadership Forum and other training opportunities. Leadership training included topics related to organizing, managing, and teaching youth in a non-formal educational setting. The FUNdamentals of Positive Youth Development-Leaders College was heavily incorporated as the training curriculum.

**Results**

State Rec Lab teen participants reported being motivated to do more 4-H (96%) with 92% showing increased confidence in their communication skills. In a post-event survey, 84% of Leaders College participants showed good or excellent knowledge and skills for working with youth, compared to just 32% pre training. More than 95% of councils and clubs have demonstrated best practices with finances. Results of a 4-H Teamwork survey completed by teen camp counselors showed that 100% thought it was important to complete tasks, and divided responsibilities among team members. They feel they benefit from group participation, and have the confidence to build and maintain trust among team members. Ninety-three percent reported they were confident in assisting a group to determine team goals and could communicate their ideas. A full length PBS documentary on the 4-H experience shown statewide on numerous occasions has provided increased visibility, participation and support.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
806	Youth Development

**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**

<b>Year</b>	<b>Actual</b>
2012	15

### 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 own businesses. The Jr. Agriculture Loan Program provides limited resources to youth to purchase livestock through an application process. For many, this gives them a start in establishing a viable business.

#### What has been done

Youth receiving loans attend 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 recordkeeping systems and develop business agreements between parties when appropriate.

#### Results

Over the last 20 years, the Junior Ag Loan Program for youth has been responsible for 89 loans totaling \$592,060.00 to purchase a total of 735 bred cows. In 2012 two new loan clients completed all the training and were approved for \$17,000 to purchase 14 bred cows. 95 percent of these loans have been fully repaid. An additional 3 new youth loan clients borrowed a total of \$2050 for purchase of 3 4-H Market Steers. Youth who graduate from the Junior program are finding great success in graduating to programs for mature producers.

### 4. Associated Knowledge Areas

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

### Outcome #4

#### 1. Outcome Measures

Life Skill Development; Communications/Public Speaking: Through their involvement in 4-H: 50% of the members will participate in communication/public speaking activities; know how to find information for a speech or talk; 60% can select a topic, speak loud enough to be heard and organize thoughts necessary to give a speech or talk.

Not Reporting on this Outcome Measure

**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**

<b>Year</b>	<b>Actual</b>
2012	2570

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Research has shown there is an increasing need for youth to enter into fields related to science, engineering and technology. Research also shows that the US is falling behind other countries in school performance in science and math as well as fewer students entering those fields. 4-H is known for its hands-on learning and can serve as an exceptional program to engage youth in science and deliver high quality, research-based hands-on experiences in science, engineering and technology. It is especially important to reach youth in underserved audiences to allow them to see that they too can be scientists.

**What has been done**

Montana State Science and Engineering (SET) Team members attended a regional meeting on implementing science into curriculum and are working to deliver new skills and ideas to local agents. Many use extensive hands-on, integrative approaches to reach more students with science concepts. Agents partner with schools in presenting after school programming which includes things like robotics, aerospace and wind energy. SET concepts are included in camps, demonstrations, leadership activities and more.

**Results**

The Montana Sustainable Communities project was identified by the National 4-H Council as a Promising 4-H Science Program in 2012 due to its innovative approach of integrating 4-H afterschool principles into the school day (and afterschool programs), integrating school teachers with experts from MSU Extension and the MSU Film School, employing a stepwise model with 3rd to 8th graders and incorporating regular interactions with community members. Students learned technology, science and life skills. They learned team building and problem solving through building robots for competition, how to think critically about the process and content of their videos and science through their film content. Post evaluations showed 75% of students could

identify robot parts, read and follow plans, add components, improve or modify a robot with little or no adult supervision. 84% understood the purpose of film, audiences, timelines and planning. 74% could develop questions, build rapport, and conduct interviews for video. Students indicated an increase in fun, pride, confidence and excitement. The Montana 4-H website hosts the student films.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
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
2012	2018

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

While men and women are fighting for the freedom we get to live with every day, the families of the deployed need a support network. With mobilization and deployment at record highs, it is necessary to have an organization that provides support for military families to help meet the needs of military youth. To be most effective in Montana, Operation Military Kids (OMK) partners with local 4-H and Extension to provide educational and outreach events, services and resources.

###### **What has been done**

OMK reached 2,018 military youth statewide. Six camps were held, reaching 139 kids. The Mobile Technology Lab was utilized at over 20 events providing an opportunity for 514 youth and 1200 family members in locations all over the state to communicate with and support deployed family members. Extension agents, along with Montana National Guard and Child and Military Family Life consultants conducted 6 workshops for 128 community leaders to receive training about the issues and concerns faced by youth whose loved ones deploy. Forty-three youth and family members participated in Speak Out For Military Kids events. The efforts of teens who

participated in the Speak Out for Military Kids were rewarded with a permanent mural in the Belgrade Public Library dedicated to military kids.

**Results**

Teens who attended camps learned leadership, resiliency and gained courage and friendship through camps. They reported learning to work together and communicate as a team and appreciated making new friends who understood having family members deployed. Community leaders who attended the training learned how youth can be affected by the deployment cycle and military culture and how they can be supported. 4-H clubs statewide wrote handwritten letters and donated items for 150 Hero packs which were given to peers whose parents were about to be deployed.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**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 assumes there is a continuing need for youth to learn skills they can use over time and that youth learn best through hands-on experiences. Goals in Montana are built around the six Cs: competence, character, caring, confidence and connections leading to increased contribution. Primarily accomplished through 4-H, this program has been very successful.

More than 10,000 youth participated in 2012. The overall program goal for the year was focused around goal-setting. Of those who participated in fairs and completed projects, 75% indicated they learned to set goals in writing, develop a plan to achieve them, ask for help and evaluate their progress and success.

Both youth and volunteers who participated in leadership training and activities reported overwhelmingly that they were motivated to do more in 4-H, that they understood the importance of following up on commitments, maintaining trust, building strong teams and listening. Councils and clubs demonstrated best practices with finances.

Reservation youth who participated in the Junior Ag Loan Program continued to have

excellent success. They completed the financial and beef management trainings, have been successful in starting herds and repaying their loans.

Programming in Montana 4-H included specific projects related to science, engineering and technology. These included programming on the Crow Reservation which combined filmmaking and robotics along with BioScience Montana, an immersive health sciences projects for high school-aged youth interested in careers in health and biomedical research.

MSU Extension Youth Development programs work with military families has been an enormous benefit in Montana with more than 2,000 youth being directly served. Camps and the Mobile Technology Lab connect youth with one another and with coping resources. IN addition, Extension agents, along with the Montana National Guard and Child and Military Family Life consultants conducted six workshops with community leaders to help them understand the unique issues and concerns faced by youth whose loved ones deploy.

## Key Items of Evaluation

More than 10,000 youth participate annually in community 4-H clubs with project goals of demonstrating their knowledge and skill through presentations and exhibits.

75% who participated in fairs and completed projects set goals in writing, developed a plan to achieve them, asked for help as needed and evaluated their progress and success.

State Rec Lab teen participants reported being motivated to do more 4-H work (96%) with 92% showing increased confidence in their communication skills.

84% of Leader College participants, in a post-event survey, showed good or excellent knowledge and skills for working with youth, compared to just 32% pre-training.

More than 95% of councils and clubs have demonstrated best practices with finances.

Results of a 4-H Teamwork survey completed by teen camp counselors showed that 100% thought it was important to complete tasks, divide responsibilities among team members and participate in groups. They felt they have the confidence to build and maintain trust among team members. 93% reported they were confident in assisting a group to determine team goals and could communicate their ideas.

Over the last 20 years, the Junior Ag Loan Program for youth has been responsible for 89 loans totaling \$592,060.00 to purchase a total of 735 bred cows. In 2012 two new loan clients completed all the training and were approved for \$17,000 to purchase 14 bred cows.

Post evaluations of youth in the Montana Sustainable Communities Project (SCP) showed that 75% of students could identify robot parts, read and follow plans, add components, improve or modify a robot with little or no adult supervision. 84% understood the purpose of film, audiences, timelines and planning. 74% could develop questions, build rapport, and conduct interviews for video.

Military teens who attended camps learned leadership, teamwork, resiliency and gained courage and friendship with others whose family members are also deployed.

Community leaders who attended the Operation Military Kids training learned how youth can be affected by the deployment cycle and military culture and how they can be supported.

4-H clubs statewide wrote handwritten letters and donated items for 150 Hero packs which were given to peers whose parents were about to be deployed



**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
112	Watershed Protection and Management	5%			
205	Plant Management Systems	20%			
213	Weeds Affecting Plants	10%			
216	Integrated Pest Management Systems	15%			
301	Reproductive Performance of Animals	10%			
307	Animal Management Systems	15%			
311	Animal Diseases	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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	8.8	0.0	0.0	0.0
Actual Paid Professional	8.6	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
132885	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
313495	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

The Montana Beef Network uses a variety of delivery methods to reach producers including interactive video conferencing, workshops, newsletters, seminars and interactive TV that addresses nutrition, production, marketing and other topics important to the clientele. The Montana Sheep Institute uses demonstration sites associated with grazing of noxious weeds (leafy spurge and spotted knapweed) by small ruminants, provides workshops and seminars for producers on best practices for effective/efficient production and marketing strategies and clinics for people interested in learning to shear their sheep or hire out to shear others animals. The weed issue is addressed by landowners learning to monitor their property for weed infestations and then knowing when and how to address the problems. Workshops, tours and field days are used to raise the ability of the landowners to curtail weed infestations. The crops area use workshops and seminars to help producers with keeping records, decision making aids, leasing alternatives/marketing, computer applications as well as test plots, tours and other demonstration strategies that provide information on varieties, fertilizer and soils. Master Gardener programs are delivered both live and by internet as well as printed resources to use in answering questions. Workshops on financial management, developing business plans, analyzing individual enterprise techniques are all associated with helping producers make decisions that will result in making a profit/staying in business.

**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**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	14750	6069	63052	2035

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

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	39	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Montana Beef Network: Number of people participating in demonstration/tour opportunities. Number of producers attending workshops on disease mitigation and prevention. Number of producers attending presentations on "best practices" in beef cattle production and marketing.

Year                      Actual  
 2012                      3495

**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

2012 4682

**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.

<b>Year</b>	<b>Actual</b>
2012	1600

**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.

<b>Year</b>	<b>Actual</b>
2012	3245

**Output #5**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	641

**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.

<b>Year</b>	<b>Actual</b>
2012	5755

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Montana Beef Network: Number of people learning about new practices in livestock production. The percent of increase in the value of calves sold at weaning. Number of people who made changes in the way records are kept on ranches. Percent of breeding programs that are meeting the needs of the consumer in terms of quality and yield grade of calves. Add value to weaned calves
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 Network: Number of people learning about new practices in livestock production. The percent of increase in the value of calves sold at weaning. Number of people who made changes in the way records are kept on ranches. Percent of breeding programs that are meeting the needs of the consumer in terms of quality and yield grade of calves. Add value to weaned calves

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	2623

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

According to the Montana Stockgrowers Association, there are 2.5 million head of cattle in Montana and cash receipts from beef cattle operations form the largest part of agriculture industry which is the largest economic driver in Montana. The statewide Extension Beef Cattle program is key to supporting this industry and Montana families in the business. In July 2012 the Extension Beef Cattle Specialist relocated to Bozeman from Miles City and has focused on reinvigorating the program around key issues including nutrition, ration balancing, management, youth programming and profitability. The Montana Beef Network, became a private entity in 2010, and is no longer directly affiliated with MSU Extension.

**What has been done**

Twenty-three classes, including 9 webinars, were attended by nearly 900 consumers. Topics were determined based specifically on the needs of producers and agents and included: Pre-Calving Nutrition Considerations, Impacts of Different Post-Weaning Development Strategies on Subsequent Feedlot Performance and Carcass Characteristics, and Feeding Risks from Drought Impacted Feeds and Forages. Focus also remained on youth programming including coordinating the statewide Steer of Merit carcass contest and Youth Livestock Quality Assurance training. Written materials were available both in hard copy and electronically, web delivered newsletters and eXtension offer other sources of information used by producers.

**Results**

Market beef was the 4th most popular 4-H youth project with 2623 youth completing the project in 2012. Youth with market animals are required to take a Livestock Quality Assurance Class every two years. They report learning how to care for their animal, husbandry, how to make ethical choices and that how they care for their animal directly affects the quality of meat. Steer of Merit

designations were awarded to 126 youth. The Bovine Connection, a two day event that occurs every two years and rotates around Eastern Montana and North Dakota was successfully hosted in Sidney, Montana. Attendees heard from national experts who reported that networking with others in the ranching industry was a huge benefit to their own operations. Ranchers who learned from methods provided by Extension including balancing rations, adjusting for antagonists and considering alternatives to buying hay or supplementing, reported saving from \$35 to \$45 per head as a result.

#### 4. Associated Knowledge Areas

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

#### 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
2012	2662

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

MSU is home to one of two wool labs in the United States and provides critical research and support for sheep producers nationwide. The National Ag Statistics Service indicates Montana had 230,000 sheep in 2012, a decline of about 2 percent. Sheep producers are looking for ways to stay in business and stay profitable. Research has shown producers with weed issues have

successfully used sheep to address infestations of unwanted plants. As this becomes a more generally adopted method of controlling weeds, producers may be more inclined to invest in sheep as a weed controlling entity as well as increasing profit margins for their operations.

#### **What has been done**

The statewide Extension sheep program has focused on research and outreach programs in a variety of projects including grazing and noxious weeds, disease susceptibility, rib eye, residual feed intake and wool pool work. More than 120 programs were conducted reaching over 2662 direct contacts in areas including 4-H Market Lamb projects, Wool Preparation and Marketing, Ultrasound Measurement, Sheep Selection and Sheep Nutrition.

#### **Results**

Producers who attended the Montana Sheep Seminar reported that information presented on the lamb and wool markets would improve the profitability of their operations and 80 percent indicated they would make changes in their operations based specifically on information they gained on culling strategies and the management of parasites and worming. 2020 Montana Youth enrolled in the 4-H youth sheep project. Youth learned care and ethics in Quality Assurance classes earning several the label of Montana Certified Lamb. Research indicated a 40-70% reduction in alfalfa weevil populations by grazing sheep in the early spring and preliminarily data showed an increase in some spotted knapweed bio-control agents when sheep grazing was present. Research for the Montana Wool Lab indicated that US wools are superior to Australian wools for the knitting of socks because of the loft and bulk. This could lead to a major manufacturer, Crescent Socks, moving their current pre-cut line to all US wool, an excellent prospect for Montana producers.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
213	Weeds Affecting Plants
301	Reproductive Performance of Animals
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices

#### **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
2012	1600

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Noxious weeds continue to impact all land utilized in production agriculture from no-till cropping systems to pastures to native rangeland. Extension agents located around the state are vital to combatting infestations. Agents continually visit sites, make recommendations, develop and implement integrated weed management plans, and focus on the many impacts to the environment; from what happens if nothing is done, to using herbicides safely. In addition, agents and specialists recognize that early detection and rapid response (EDRR) to invading or still spreading species is critical to protecting non-infested lands and is the most cost effective.

**What has been done**

Extension Weed Specialists are very active in research, education and outreach. They frequently answer phone calls and emails from clients/agents with solutions and responses, visit Farmers Markets, trade shows and visible, public, easily accessible places to share knowledge and the latest in science-based research on weed control through timely technical bulletins, ag alerts, and news releases. Information is featured on web sites from the Weed and Invasive Plant Ecology and Extension Invasive Plant Ecology and Management group and appearing regularly on Montana PBS, Montana Ag Live. Two specialists conducted 54 workshops/demonstrations reaching 1575 people.

**Results**

Participants in Early Detection and Rapid Response (EDDR) classes entered over 400 new records into the invader reporting database. The Schutter Diagnostic lab identified 467 unknown plant specimens and herbicide injury samples. Those attending off-campus presentations rated on a scale of 1/poor, 5/excellent, improved ability to understand (4.29) and improved ability to make sound decisions (4.3) related to weed control. Extension directed considerable attention toward drought and post fire recovery needs. It helped secure a \$20,000 grant to assist nine land owners in Powder River County with post-fire noxious weed control. Sixteen property owners in a moderately-dense residential area in the Paradise Valley are participating in the Pine Creek Fire Reseeding Program, which is being led by Park County Extension. This program will save them up to 75% of the costs to reseed their property post-fire either aurally or with ground seeding. Reseeding grass and planting trees and shrubs will reduce the potential for soil erosion and weed infestation of nearly 500 acres burned by the Pine Creek Fire.

**4. Associated Knowledge Areas**

**KA Code    Knowledge Area**

205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems

#### **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 Knowledge Outcome Measure

##### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	641

##### **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% horticulture or IPM related and in some counties the percentage is upwards of 90%. Master Gardener Curriculum is written and produced by the MSU Extension Horticulture professional staff with the goal to better educate the general public in horticulture, yard and garden maintenance and IPM. This education will benefit the agents with an overall competency of the students to then educate others in the community effectively. Because this program is so successful there are hundreds of participants statewide at different levels and various points in volunteer contributions, etc.

###### **What has been done**

Three levels of classes are offered: level 1 (16 hours class time/20 hours volunteer commitment) includes basic and intermediate curriculum, level 2 (16 hours 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**

Montana Master Gardeners who were active online in 2012, reported volunteering 13,831 hours. The value of the program from that volunteering is \$301,377.49 (calculated using the national average for volunteer time 2011 of \$21.79) Because of the number of Master Gardeners completing Level 3 (the highest certified level), there are at least 5 counties where the Level 3

Master Gardeners have taught or supported the Level I and II programs in their area. In 2012 at least 7600 pounds of fresh produce was donated to community partners statewide easing the burden on local food banks and supplying fresh food.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

#### 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
2012	3245

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Increased market volatility and changing climatic conditions, as well as recent advancements in agricultural research have led producers to diversify their production to include less conventional crops. While this diversification is helping producers make a profit there is an inherent need to educate the producer about potential pitfalls in the production of these crops and an obligation to share the knowledge gleaned with other producers. Growers request up-to-date, unbiased research-based educational programs and look to Extension to learn the latest information related to varieties, flexible cropping strategies, alternative crops, oilseed crops and marketing.

###### **What has been done**

Specialists and agents are involved on a daily basis with producers around the state. In addition to answering direct email and phone calls, Extension specialists produce resources including Ag Alerts, news articles, Montguides and journals and frequently appear on Montana PBS Montana Ag Live and at Farmers Markets, Fairs and Professional Organization Meetings. In 2012, two specialists provided 38 workshops (sugarbeet disease management, Urban IPM, barley IPM, biological controls, cropping seminars, potato diseases) for 3245 clients. County agents and community partners conducted pulse seed tours and Field Days in locations throughout the state.

**Results**

The evaluation from the Regional Barley Workshop indicated the growers gained the most knowledge and were most interested in the barley storage and drying class. The Cropping Seminar evaluations showed growers rating the program around 4.7 out of 5. In 2012, the MonDak Pulse Day was held in Montana for the first time in twelve years. Of the producers attending this event, 81% indicated they considered pulse crops in rotation as extremely useful or useful. The Northeast Montana Pulse Plot tour also brought researchers, industry representatives and producers to the field to view first hand how 46 pea, 24 lentil and 11 chickpea varieties responded to the growing conditions of 2012.

**4. Associated Knowledge Areas**

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

**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**

<b>Year</b>	<b>Actual</b>
-------------	---------------

2012

72268

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Agriculture will continue to face challenges from environmental, economic, political, and social issues. In the US, the decrease in forage production has put increased demands on those who raise forage, to increase production and better manage harvesting and it has given the growers new opportunities for marketing. 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.

#### What has been done

Extension workshops/classes/demonstrations/newsletters/MontGuides provided information for producers to make decisions on management practices. Classes and individual meetings cover topics including learning to do a break even analysis, partial and whole farm budgeting, use of Quicken for farm and ranch accounts, determining cash and share lease rates, and custom rates and futures, options and insurance. Agents provide financial tools to help with record keeping and billing, ration balancing, enterprise analysis, reproduction information and equipment costing. Individual producers learn how to determine optimum fertilizer rates, tillage and other management decisions based on input prices and estimated yield potential. Some producers learned bunk management, corral design, herd health and marketing.

#### Results

The impact of Agriculture Agents on the profitability of producers statewide is evident in fields and corrals in every county and in the fact that agriculture continues to be the leading industry in Montana. In the past three years, profitability of crops has increased in part due to Extension, the Montana Ag Experiment Station and partnerships with other agencies. Through drought, fire and economic instability, Montana producers receive leading-edge research information directly related to them where they are; on their land. In 2012, the number of farms with economic sales over \$10,000 grew by more than 1200 to 17,100. Growers report increased tons per acre as a result of better fertility management in drought conditions. They report decreased cattle mortality and illness as a result of soil and water testing. They report increased meat quality due to ration balancing. Because of MSU Extension, producers have access to the best tools and latest knowledge giving them the best opportunity to be successful while protecting their land, improving sustainability and preserving for future generations. Impacts are often individual but add up to a thriving agricultural economy.

### 4. Associated Knowledge Areas

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

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- 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 reaching goals in this area in 2012.

The MSU Beef Cattle specialist relocated in from the Eastern part of the state to the main MSU Campus during 2012. As a result, her efforts were focused on delivering training, conducting site visits and meeting specific producer needs. She delivered excellent services to drought ridden areas as well as to ranchers impacted by fires. She worked with youth in the Quality Assurance programming and provided 23 classes (9 were webinars) for 900 adult clients. With the move to campus completed, data collection on specific impacts will be improved in 2013.

Sheep studies continued in the area of grazing and wool quality with recent research indicating that US wools are superior to those from Australia for knitting socks. The research is the basis for new markets opening to Montana producers.

MSU Extension weed specialists have been active in education and noxious weed prevention and eradication. More than 400 new records were entered into the Early Detection/Rapid Response (EDRR) database. Thousands of acres were certified noxious weed free. The MSU Extension Schutter Diagnostic Lab identified 467 unknown plant specimens and herbicide injury samples. Fifty four workshops/demonstrations were conducted around the state directly reaching 1575 people, while the Montana PBS program, Montana Ag Live, regularly featured weed and invasive plant ecology specialists to a much broader audience.

The Master Gardener program and urban horticulture efforts of MSU Extension also continued to grow. With more Level 3 Master Gardeners certified and active across the state, more people are being reached with the latest research-based and regionally oriented information about gardening and urban landscaping. Evaluation of this program continues for those still involved with MSU Extension, but as people graduate the program, the impact multiplies even as collecting the data becomes more difficult. An online reporting system has been established and will be a large part of ongoing data

management.

Cropping seminar evaluations show the classes to be a large success with attendees reporting an average rating of 4.7 on a scale of 1-5 with 5 being excellent.

Agriculture profitability is a focus of nearly all Extension efforts. Measurement and evaluation is likely underreported as the largest benefit of Extension continues to be its ability to work one-on-one with producers in unique situations.

## **Key Items of Evaluation**

### **LIVESTOCK**

2623 youth enrolled in the market beef project and 2020 youth enrolled in the market sheep project; with each required to take a Livestock Quality Assurance class every two years.

Class participants report learning how to care for their animal, husbandry, how to make ethical choices and that care for their animal directly affects the quality of meat.

Steer of Merit designations were awarded to 126 youth.

Producers who attended the Montana Sheep Seminar reported that the information presented on the lamb and wool markets would improve the profitability of their operations and 80% indicated they would make changes in their operations based specifically on information they gained on culling strategies and the management of parasites and worming.

Research indicated a 40-70% reduction in alfalfa weevil populations by grazing sheep in the early spring and preliminarily data showed an increase in some spotted knapweed bio-control agents when sheep grazing was present.

Research for the Montana Wool Lab indicated that US wools are superior to Australian wools for the knitting of socks because of the loft and bulk.

### **WEED CONTROL**

Participants in EDRR classes entered over 400 new records into the invader reporting database and provided information appropriate for the diagnosis.

The Schutter Diagnostic lab identified 467 unknown plant specimens and herbicide injury samples.

Those attending off-campus presentations on weeds rated on a scale of 1/poor, 5/excellent, improved ability to understand (4.29) and improved ability to make sound decisions (4.3) related to weed control.

### **MASTER GARDENER**

Montana Master Gardeners who were active online in 2012, reported volunteering 13,831 hours. The value of the program from that volunteering is \$301,377.49 (calculated using the national average for volunteer time 2011 of \$21.79)

In 2012 at least 7600 pounds of fresh produce was donated to community partners statewide easing the burden on local food banks and supplying fresh food.

### **CROPS**

The Cropping Seminar evaluations showed growers rating the program around 4.7 out of 5.

Of the producers attending the MonDak Pulse Day event, 81% indicated they considered pulse crops research and information on rotation as extremely useful or useful.

### **PROFITABILITY**

In 2012, the number of farms with economic sales over \$10,000 grew by more than 1200 to 17,100. Growers report increased tons per acre as a result of better fertility management in drought conditions. They report decreased cattle mortality and illness as a result of soil and water testing. They report increased meat quality due to ration

balancing. Because of MSU Extension, producers have access to the best tools and latest knowledge giving them the best opportunity to be successful while protecting their land, improving sustainability and preserving for future generations.



**V(A). Planned Program (Summary)**

**Program # 4**

**1. Name of the Planned Program**

Sustainable Energy - 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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	2.8	0.0	0.0	0.0
Actual Paid Professional	1.9	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
6613	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
130670	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 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 environment 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**

Care givers 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**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	2735	49508	0	444

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	16	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Estate Planning An estimated 1000 people will attend an in-depth seminar on estate planning and promotion and will begin to make plans for distribution of their estates. Distribute MontGuides on state and federal law changes to 1400 people who have purchased Estate Planning: The Basics Packet Train/distribute the curriculum: Track'n Your Saving Goals Register and associated MontGuides Distribute materials/fact sheets on AIPRA on reservations - estimated 100.

Year	Actual
2012	700

**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
2012	888

**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
2012	1491

**Output #4**

**Output Measure**

- Parenting Piece by Piece Train 3 county Extension agents in a train-the-trainer model for delivering a 6 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.

<b>Year</b>	<b>Actual</b>
2012	100

**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: An estimated 1000 people will make plans for the distribution of their property through estate planning.

## **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**

<b>Year</b>	<b>Actual</b>
2012	1400

### **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. One of these is Alzheimers with over 16,800 individuals diagnosed with the disease to date. Most older Montanans live on their own or with a spouse, yet they often require a certain level of care-giving. The people in the care giving roles can benefit from learning strategies that will make their efforts efficient and effective while maintaining their own health and well-being. This is an incredibly simple program that allows family caregivers to find the tools they need to manage their lives and care for those they love. With the increase of baby boomers in our society, Powerful Tools class will increase in value.

#### **What has been done**

At least two Train the Trainer classes were offered; these are two day training programs for social workers, Extension agents and other interested people to learn to teach the class. 19 new leaders were certified. Three 6-week Powerful Tools for Caregivers classes were held in the state. Class participants receive a copy of The Caregiver Help book, developed specifically for the class. This self-guided handbook contains vital information concerning the location of personal information such as insurance numbers, contact resources, medial history and family contacts. The support group meets once a month for lunch.

#### **Results**

In 2012, there continued to be statistically significant increases in understanding from pre to post-test by participants of caregiving stress and the need for self-care. After taking the class and joining the monthly support group, caregivers realize that they have a common bond and are dealing with some of the same issues. The support group allows members to share their stories, review tools and learn ways to cope. They learn that is it very important to take care of

themselves. Participants value the reference materials and resources that they have available to them after taking the class. The evaluation given at the end of the class indicates that caregivers improve in their ability to ask for help and care for themselves by an increase of 28 points. Once trainers have this training they teach the class outside of Extension. Support groups continue after the classes are complete so the full quantitative impact is not known.

#### 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
2012	2029

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

In Montana, there are more than 6,600 grandparents with sole responsibility for rearing their grandchildren; most often as a result of a crisis including the death of the parent, involvement of social services, and military deployment. The emotional toll on grandparents can be extensive. MSU Extension has taken a leadership role to provide services and support to these grandparents. The Grandparents Raising Grandchildren Project is celebrating its 10th year of providing education, support, resources, and research to help grandparents parent a second time.

###### **What has been done**

In 2012 Extension specialists met individually with members of the Grandparents Raising Grandparents Task Force to strategize for the future. A bimonthly newsletter is available to all

Extension Offices, grandparents and others who request it. The current mailing list has 325 individuals and 16 electronic subscriptions. MSU Extension provides support to start education/support groups in local communities. Currently there are 13 such groups known. During 2012 more than 444 contacts were made across the state with grandparents raising grandchildren. Approximately 150 attended support group meetings.

### Results

Families report the support provided to them from each other, helps tremendously. They report that it is nice to know they are not alone. Grandparents in the program are informed of the need to understand how transfer of wealth occurs in Montana. As a result, many take an Extension class titled Think You Know Who Gets Your Property When You Die? Think Again, and in 2012, as many as fifty percent who reported indicated they followed up by creating a will. Only about three percent of grandparents raising grandchildren are licensed foster care parents, thus saving an estimated \$202,000 per day for the state of Montana.

## 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
2012	1491

#### 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 and health effects related to home environmental issues. Extension outreach programs confirms the reality of these issues, radon levels in MT rank 3rd highest in the



U.S., asthma has increased due to poor home environment, molds have forced homeowners out of their homes and other homes 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**

The Extension Housing and Environmental Health program offers practical information, workshops and training courses across the state and at the Weatherization Center in Bozeman on topics such as weatherization, indoor air quality, pollution prevention, new construction, home safety, water quality, recycling and waste reduction and many other topics that are useful to Montana consumers. In 2012 the Center taught 51 classes for weatherization professionals from a five state region with a total of 393 attendees. These professionals are on the ground weatherizing and making homes safe every day. The Extension Pollution Program administers the EcoStar Pollution Prevention Award Program.

**Results**

The Department of Energy claims a 35% reduction in energy use in homes that have been weatherized. By training and providing resources Extension helps low-income families save an average of \$437/year on an ongoing basis by weatherizing their homes. In 2012, 19 businesses and organizations, representing 15 communities received EcoStar Awards recognizing their successful efforts to reduce solid and hazardous waste and to conserve valuable resources such as water, energy and clean air. Combined these winners saved nearly 7 million gallons of water, conserved over 2.6 British Thermal Units (BTUs), reduced 41,493 pounds of hazardous waste and saved \$427,735 due to their pollution prevention efforts.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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: An estimated 1000 people will make plans for the distribution of their property through estate planning.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	13067

**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. Being informed on estate planning is the only way individuals/families can be sure their final wishes are realized. Statistics reveal that 70% of Montanans die without a will. The state legislature continues to change the 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 on. Education is needed to provide Montana families with information about the impact of state and federal laws on their situations.

**What has been done**

Over 700 Montanans attended estate planning webinars during 2012. Over 1,700 Montanans have purchased the MSU Extension Estate Planning: the Basics, packets that contain a variety of estate planning MontGuides. Many have expressed appreciation that they have received and will continue to receive revised MontGuides automatically when state and federal laws change. The estate planning Web site that provides links to 35 estate planning MontGuides had over 6,600 hits during 2011/2012. The interactive website and CD that illustrates how property passes under Montana law when a person dies without a written will had over 3,726 hits during 2011/2012. Over 341 CDs were mailed out during the past two years bringing the total requests fulfilled to 1,385.

**Results**

Evaluations reveal that after learning about Montana laws: 38% discussed a will with their family, 37% drafted a will for the first time, 22% revised their current will, 25% contacted an attorney for assistance in executing a will. Participants indicated they appreciated being able to attend a session without having to use family financial resources to drive to a meeting and risk winter weather roads. Families opened lines of communication in terms of estate planning.

**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. Extension specialists in this program fill a variety of needs resulting from sparse populations, an aging demographic and a struggling national economy. The major goals of assisting caregivers, helping citizens understand transfer of wealth and increasing the number of energy efficient homes were met.

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 beyond what the individual agents can regularly offer. 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. It could be argued that the best impact is that the people are empowered and continue the programming 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 Grandparents class offers direct support to grandparents who take on childcare, often in crisis. Participants then continue receiving a newsletter and often continue support groups. Many take other Extension classes related to creating a will or estate planning. Many report that the availability of the classes online is a major factor in their 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 TOOLS FOR CAREGIVERS**

Pre to post test results indicate significant increase in understanding how to reduce

caregiving stress and the need for self-care

Caregivers improved in their ability to ask for help and care for themselves by an increase of 28 points on a 100 point scale.

#### GRANDPARENTS RAISING GRANDCHILDREN

Only about three percent of grandparents raising grandchildren are licensed foster care parents, thus saving an estimated \$202,000 per day for the state of Montana.

**HOUSING AND ENVIRONMENTAL QUALITY** The Department of Energy claims a 35% reduction in energy use in homes that have been weatherized. By training and providing resources Extension helps low-income families save an average of \$437/year on an ongoing basis by weatherizing their homes.

In 2012, 19 businesses and organizations, representing 15 communities received EcoStar Awards recognizing their successful efforts to reduce solid and hazardous waste and to conserve valuable resources such as water, energy and clean air.

#### ESTATE PLANNING

Evaluations reveal that after learning about Montana laws: 38% of participants discussed a will with their family, 37% drafted a will for the first time, 22% revised their current will, 25% contacted an attorney for assistance in executing a will.

**V(A). Planned Program (Summary)**

**Program # 5**

**1. Name of the Planned Program**

Sustainable Energy - 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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	5.2	0.0	0.0	0.0
Actual Paid Professional	4.2	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
42022	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
16070	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Community meetings will be held to determine community values, attitudes and vision on which to develop strategies and action plans.

Partner with local economic development entities, agencies, businesses/industry and organizations to implement goals and plans of action.

Partner with local adult education entities to identify class offerings.

Work to plan for potential disasters that may occur in a community, e.g., EDEN.

Training opportunities will be 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**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	12875	16517	543	10163

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

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	10	0	0

**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.

Year	Actual
2012	953

**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
2012	149

**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.

<b>Year</b>	<b>Actual</b>
2012	1014

**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.

<b>Year</b>	<b>Actual</b>
2012	4347

**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.

<b>Year</b>	<b>Actual</b>
2012	7000

**Output #6**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2012	60



**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.
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	HORIZONS: Communities demonstrate awareness and interest in poverty reduction. Community members become aware of opportunities, tools and techniques available to engage in poverty reduction. Communities begin to recognize and own poverty as a community issue about which they can take action. Communities begin to recognize and own leadership as a community issue about which they can take action. Communities demonstrate an interest in poverty reduction and begin the process of learning to recruit and mobilize others. Communities are mobilized to create and adopt a shared vision for poverty reduction. Communities will directly engage people living in poverty in leadership training and action planning. Communities will define leadership for poverty reduction as collective, rather than individual actions. Communities will implement inclusive processes and decision-making methods. Leadership base of communities will mirror the demographics of their community. Communities have a commitment to poverty reduction. Communities will implement and sustain changes that contribute to poverty reduction in the community. Communities will be able to demonstrate progress toward reducing poverty. Communities will conduct Study Circles and Leadership Plenty activities and involve people new to the community problem solving. People trained as facilitators for the Study Circle and Leadership Plenty process are able to assist community groups. People who have developed or enhanced their leadership skills are able to apply those newly acquired skills and techniques.
5	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.
6	COMMUNITY DEVELOPMENT WITH TRIBAL POPULATIONS: Culturally sensitive programs focused on community needs will be developed through partnerships with tribal populations.

**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
2012	1014

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

All 50 states and three territories are represented on the Extension Disaster Education Network (EDEN). All disasters and emergencies are local. The immediate response to events is dependent upon 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.

**What has been done**

At the invitation of the EDEN Executive Committee, Chouteau County participated in a test of the capabilities of EDEN to distribute information in a timely manner. Selected by the Institute of Medicine (IOM), Chouteau County was one of only three locations nation-wide to host a public engagement workshop to explore the public perception of the safety, feasibility and acceptability of potential alternative strategies for the distribution of antiviral medications during an influenza pandemic. Deer Lodge County participated as the Western Region Pilot for the pilot FEMA ReadyCommunity Program. With approximately 80,000 acres of timber land burnt in the Musselshell and Golden Valley counties, Extension responded to landowners with assistance.

**Results**

The EDEN test showed that the contact system is effective. More than 80% received the test message and passed it on within 2 hours. The IOM pandemic workshop showed a general trust in CDC guidelines, local professionals and pharmacists. It also showed a need for better transparency, consistency and specific information from local sources. Input from this exercise will be utilized by the CDC to form public policy and health guidelines in the event of a pandemic disease event. As a result of the ReadyCommunity program, Deer Lodge County has a new generator backing up their water system, a shelter getting a back-up generator and residents are more prepared to help themselves in a disaster. Following the Dahl Fire recovery workshop,

landowners knew how to tell if a scorched tree could survive, how to use burnt trees to prevent erosion and when there was a need to reseed. Based on visual inspection, several landowners started work the day after the workshop.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety

### 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.

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Condition Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2012	953

#### 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 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**

The Montana Community Foundation is partnering with and offering support to Horizon alumni communities and is coordinating all grant allocations and providing assistance with grant proposals and budgets. People within these communities who have personally lived in poverty

are part of the leadership teams and many of the communities have learned to focus the collective resources of the community towards major projects and growth.

**Results**

MSU Community Development Extension specialists calculate that over a million dollars has been secured through various fund raising, donations, in-kind contributions, and grant opportunities in all 20 Horizons Alumni communities. In Anaconda, a Certified Nurse Assistant program was formed. Graduates of the program are now employed with a livable wage and full benefits with more than 50% planning to continue their career with LPN training and approximately 15% also planning RN certification. In Big Timber, a local floral shop has been purchased by community residents rather than closing. In Boulder, the 21st Century Afterschool Program continues to serve the children and families in the community. The children in the program have joined the Farmers Market in the summer selling their produce and then reinvesting the money raised into their gardening efforts. In Whitehall, Horizons participants worked with Extension personnel to secure a \$655,000 U.S. Commerce Department Economic Development Administration (EDA) special appropriation (with county matching dollars) which will allow the Sunlight Business Park infrastructure to be developed.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development

**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
2012	149

**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 folks to learn new skills to retool. They feel an urgency to be as prepared as possible for the uncertain job market. Additionally, many of the

adult education classes help by learning 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.

#### **Results**

Impacts from many adult education programs are found throughout this report. In Powell County, MSU Extension and a volunteer group design adult community education classes that are affordable, help the elderly with technology and are conveniently located. In 2012, 26 classes were offered including couponing and how to use an iPad. Classes are well attended with some having waiting lists.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

#### **Outcome #4**

##### **1. Outcome Measures**

HORIZONS: Communities demonstrate awareness and interest in poverty reduction. Community members become aware of opportunities, tools and techniques available to engage in poverty reduction. Communities begin to recognize and own poverty as a community issue about which they can take action. Communities begin to recognize and own leadership as a community issue about which they can take action. Communities demonstrate an interest in poverty reduction and begin the process of learning to recruit and mobilize others. Communities are mobilized to create and adopt a shared vision for poverty reduction. Communities will directly engage people living in poverty in leadership training and action planning. Communities will define leadership for poverty reduction as collective, rather than individual actions. Communities will implement inclusive processes and decision-making methods. Leadership base of communities will mirror the demographics of their community. Communities have a commitment to poverty reduction. Communities will implement and sustain changes that contribute to poverty reduction in the community. Communities will be able to demonstrate progress toward reducing poverty. Communities will conduct Study Circles and Leadership Plenty activities and involve people new to the community problem solving. People trained as facilitators for the Study Circle and Leadership Plenty process are able to assist community groups. People who have developed or enhanced their leadership skills are able to apply those newly acquired skills and techniques.

##### **2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	4347

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Many Montana communities have a high percentage of people living below the poverty line. These areas have a slow economy and are often losing population. The Horizons Program involved select communities in education and training in how to build leadership from within and recognize opportunities, tools and techniques available to reduce the poverty. Communities learned to mobilize themselves toward positive changes. Following the conclusion of the Horizons Grant, Horizons alumni communities continue to maintain and are developing new partnerships leading to new funding sources and meeting expanded program objectives.

**What has been done**

Local Extension Offices have played an integral role in helping rural communities remain thriving by building community capacity through the development and implementation of community foundations, active participation on local economic development boards, and participation and leadership in community-wide projects. In 2012, Extension agents and community development specialists worked extensively with their communities and partners on activities that met the needs of their individual communities. Among other things, they partnered with other organizations to build a community garden, advance cultural tourism projects, and plan and implement a field day highlighting the agriculture sector.

**Results**

Twenty Horizons alumni communities secured approximately \$1.3 million by various fundraising efforts including donations, in-kind contributions and grant opportunities. Assessments conducted before and after Horizons Study circles showed that participants substantially improved their knowledge of issues related to poverty and that the largest gains were in areas related to how poverty affects communities and what community actions can reduce poverty. Daniels County is a good example of how this knowledge, and the resulting action positively impacts communities. With Community Foundation funds, Daniels County Extension, the County Health Department and Daniels Memorial Hospital sponsored 6 raised gardens, growing a variety of vegetables used in the hospital and school. A garden shed was built by the Scobey High shop class, stepping stones were made by the Scobey High art class and a composter was installed at the site to aid in teaching proper composting practices. The community worked together to create a lasting resource, bring people together and expand the skills and knowledge of individuals in a way that will continue to benefit the community as a whole.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development

## **Outcome #5**

### **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**

<b>Year</b>	<b>Actual</b>
2012	7000

### **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 in 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. Ninety percent of newly-elected county commissioners attend a 40-hour (2-year) certification program and over 70% of municipal clerks, treasurers and finance officers receive certification through a 120 hour (3-year) training program. More than 7,000 officials and board members attended one or more LGC workshop in the last fiscal year. The LGC recently published a Municipal Officials Handbook and a Municipal Clerks, Treasurers and Finance Officers Procedures Manual.

#### **Results**

Evaluation summaries following the 2012 Montana Municipal Institute for Clerks, Treasurers and Finance Officers verify the impact of the LGC. Thirty-one sessions of the 3 day meeting were evaluated; 27 received an average score of over 4.0. Employee Motivation: Developing a Comic Vision received a 4.87 for how well the program met the learning outcomes. Communicating with the Public, Municipal Services, Labor Law, Mediating Employee Disputes and the Design and Implementation of Financial Policies all received over 4.7 for usefulness. The Institute overall

rated 4.57 for usefulness. The Elected County Officials Training/Commissioner Certification showed similar results with a 4.64 rating for the class, The MT Code of Ethics, and 4.77 for Managing Conflict Constructively. The overall usefulness of the training was 4.52.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

#### Outcome #6

##### 1. Outcome Measures

COMMUNITY DEVELOPMENT WITH TRIBAL POPULATIONS: 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 Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	60

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

The Crow Reservation, headquartered at Crow Agency, is the largest reservation in Montana on 2.2 million acres. Families qualifying for free and reduced lunch, unemployment rates and poverty rates on the Reservation are 89.5%, 46.5% and 44.9% respectively (Young and Hayes 2011). The Pretty Eagle School is an Indian school for grades K-8, located 25 miles outside the nearest town in St. Xavier, an extremely rural area. There were no enrichment or after-school activities outside of sports. Kids needed a high-quality afterschool program and youth engagement. The Montana Sustainable Communities Project has filled this need.

###### **What has been done**

The Montana Sustainable Communities Project (SCP) serves youth at the Pretty Eagle School. Third through eighth grade students learn science, technology, critical thinking, problem-solving and communication skills through hands-on projects that engage community members and honor culture. Using a train-the-trainer model, technical experts from MSU train teachers to use video technology and to build and program robots. Teachers integrate the technologies into their classrooms and after-school programs which has led to a sustainable program that involves youth in their community. Students learn to build and program robots and produce short, culturally-



relevant science films like the physics of Arrow-Throwing. Younger students build storybook characters using robots to act out a story.

### Results

The Montana SCP project was identified by the National 4-H Council as a Promising 4-H Science Program in 2012 due to its innovative approach of integrating 4-H afterschool principles into the regular school day (and afterschool programs), integrating school teachers with experts from MSU Extension and the MSU Film School, employing a stepwise model with 3rd to 8th graders and incorporating regular interactions with community members. Students learned technology, science and life skills. They learned team building and problem solving through building robots for competition, how to think critically about the process and content of their videos and science through their film content. Post evaluations showed 75% of students could identify robot parts, read and follow plans, add components, improve or modify a robot with little or no adult supervision. 84% understood the purpose of film, audiences, timelines and planning. 74% could develop questions, build rapport, and conduct interviews for video. Students indicated an increase in fun, pride, confidence and excitement. The Montana 4-H website hosts the student films.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

## V(H). Planned Program (External Factors)

### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- 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 around building community

foundations to extensive training for elected and city/county officials.

Many Extension agents worked extensive hours in planning for, managing and recovering from fire and drought disasters over the past year. Several communities participated in national programs such as (EDEN testing), Institute of Medicine Pandemic Workshops and FEMA Ready Community pilot.

In Horizons communities especially, but also in other communities around the state, Extension Community and Economic Development Programs have helped develop new, specific programs and foundations to keep wealth within communities, pool resources, and combine the efforts of groups toward the singular good of rural communities. More than \$1.3 million has been raised in community funds in 20 Horizon sites alone. Programs which create jobs, train adults for particular skills and improve boards and groups are all part of Extension work. MSU Extension has secured a new USDA grant through a partnership with the Anaconda Local Development Corporation that will allow at least 20 Extension agents and 18 community foundations to receive, over a 3-year period, much needed training in grant making, fundraising, endowment building, and community collaborations.

The MSU Extension Local Government Center (LGC) provided training for more than 7,000 city and county officials who are responsible for more than \$1 billion in public funds and over 11,000 employees. The LGC also offered classes in leadership development, strategic planning, created written resources and an active listserv and blog for this clientele.

## Key Items of Evaluation

### EDEN (Extension Disaster Education Network)

The EDEN test showed that the contact system is effective. More than 80% of participants testing the system received the test message and passed it on within 2 hours.

Because of the ReadyCommunity program, Deer Lodge County has a new generator backing up their water system, a shelter getting a back-up generator and residents are more prepared to help themselves in a disaster.

Landowners who participated in the Dahl Fire Recovery classes all learned how to tell if a scorched tree could survive, how to use burnt trees to prevent erosion and when there was a need to reseed.

### COMMUNITY RESOURCE DEVELOPMENT

In Anaconda, a Certified Nursing Assistant program was formed: employed graduates earn a livable wage with full benefits and more than 50% plan to continue their career with additional training.

In Boulder, children in the after-school program grow produce, sell it at the Farmer's Market and reinvest the money into further efforts.

In Whitehall, Horizons participants worked with Extension personal to secure a \$655,000 U.S. Commerce Department Economic Development Administration (EDA) special appropriation to help develop the Sunlight Business Park infrastructure.

### HORIZONS

Twenty alumni Horizons communities secured approximately \$1.3 million by various fundraising including donations, in-kind contributions and grant opportunities.

Assessments conducted before and after Horizons Study circles showed that participants substantially improved their knowledge of issues related to poverty and the largest gains were in areas related to how poverty affects communities and which community actions can reduce poverty.

### GOOD GOVERNANCE

More than 7,000 officials and board members attended one or more LGC workshops

in the last year.

Evaluation summaries following the 2012 Montana Municipal Institute for Clerks, Treasurers and Finance Officers show:

27 of 31 sessions received an average score of over 4.0 on a 1-5 scale with 5 being excellent.

Employee Motivation: Developing a Comic Vision received a 4.87 for how well the program met the learning outcomes.

Communicating with the Public, Municipal Services, Labor Law, Mediating Employee Disputes and the Design and Implementation of Financial Policies all received over 4.7 for usefulness.

The Institute overall rated 4.57 for usefulness.

The Elected County Officials Training/Commissioner Certification showed similar results with a 4.64 rating for the class, The MT Code of Ethics, and 4.77 for Managing Conflict Constructively.

The overall usefulness of the training was 4.52.

#### COMMUNITY DEVELOPMENT WITH TRIBAL POPULATIONS

The Montana Sustainable Communities Project at Pretty Eagle School on the Crow Reservation was identified by the National 4-H Council as a Promising 4-H Science Program.

Post evaluations showed 75% of students could identify robot parts, read and follow plans, add components, improve or modify a robot with little or no adult supervision.

84% understood the purpose of film, audiences, timelines and planning.

74% could develop questions, build rapport, and conduct interviews for video. Students indicated an increase in fun, pride, confidence and excitement.

**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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	3.4	0.0	0.0	0.0
Actual Paid Professional	3.9	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
49362	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
146387	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.

Conduct workshop/clinics on calibrating spray equipment and making plans for weed/pest control.

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.)

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?**

One of MSU Extension specialists is a national coordinator of the rangeland community of practice (CoP) in eXtension. This brings first hand knowledge of the resource 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**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10416	86218	1174	12726

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

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	33	0	0

**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
2012	1511

**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
------	--------

2012 80

**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.

<b>Year</b>	<b>Actual</b>
2012	5875

**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.

<b>Year</b>	<b>Actual</b>
2012	659

**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.

<b>Year</b>	<b>Actual</b>
2012	3465

**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
2012	1511

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The loss of a forest products mill infrastructure has contributed to a decline in the wood product industry from \$1B in 2007 to less than \$400M in 2011. To remain economically viable, large tracts are being divided into small ones. There continues to be a preferred market for small forested ranchettes (29,112 family forest owners own parcels of 10 acres or more and equal or greater number own tracts between 5-10 acres). In 2011, 62% of the wood harvest was from private lands (including 29% nonindustrial and 33% industrial). Retaining healthy and productive forests on private lands in Montana remains a high priority as these lands provide critical wildlife habitat, watersheds and wildland fire buffer zones between federal lands and urban populations.

**What has been done**

In 2012, 17 intensive workshops (5 Stewardship, 1 mini-college, 6 Master Forest Steward and 5 post-wildfire rehabilitation/restoration) and ten shorter workshops (through Master Gardener classes, Tree Farm and Rotary Club meetings) were offered to private landowners. Five programs were offered for natural resource professional service providers and/or policy/legislative bodies. Four programs were held for youth. Programs focused on how to apply science based practices for conservation and management of forest resources and providing experiential learning opportunities for both youth and adults. A daily forestry educational radio broadcast provided 260 one-minute Forestry Minutes to an estimated listenership of 50,000 people.

**Results**

Because of the interactive, educational programming 251 landowners (68 Stewardship, 42 re-verification visits, 151 master forest steward and mini-college) gained proficiency in forest inventory, ecological processes conservation, management plan development and

implementation of desired forest practices. Surveys of participants showed that skills in implementing improved forest conservation and management practices increased by 44%. 1174 youth learned about natural resources and developed skills related to forestry, wildlife and noxious weed management. 86 teachers learned how to use Project Learning Tree curriculum in their classrooms. Overall the programs impacted some level of forest management on an estimated 4,000 acres in 2012 and cumulatively 1,300,000 acres over the past 20 years. One landowner who attended a wildfire restoration/rehabilitation workshop following the Dahl fire replied that this program took him from a state of total despair at the sight of his burned-over forest to knowing what to do and where. He now understands how to help his land recover and cannot wait to get started.

#### 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 Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	80

##### 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 to 30 acres. The income for most of these families is not dependent on the acreage, but they enjoy having horses, chickens, sheep or beef animals. In general, their knowledge about land stewardship is limited, so information about weed control, pasture management, water quality and quantity, forest management among other issues is needed. Extension Education has been helpful for this

population in making decisions about living on their acreage

**What has been done**

County Extension Agents consult regularly with small acreage landowners. In Park County alone, nearly 80 one-on-one interactions occurred creating the ability to address specific topics at an elevated level in a personal setting. Workshops occur across the state throughout the year meeting local needs. One of the most successful efforts for Extension has been publication of the Big Sky Small Acres magazine. During the past year, articles included pruning fruit trees, how to identify and control underground rodents, grasshopper control, wolf identification and reducing wildlife conflict, selecting the right tractor for the job and much more.

**Results**

Small acreage landowners and homeowners gained knowledge of weed identification, the impacts of weeds, laws relating to managing weeds, and effective controls; leading to better overall management of noxious weeds. Property owners who requested and received site visits reported saving significant costs because they used less pesticide, or learned another method of control, or they used a better product or learned how to use spray equipment more efficiently. One example of this is illustrated in Madison County where 602 acres of forage crops were inspected and certified weed free yielding approximately \$21,070 in additional revenue for those selling forage. In addition, site visits and consultations have saved clientele significant amounts of money because they purchased the right trees and also because they have saved trees that otherwise might have died from lack of proper care.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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
2012	5875

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) is the federal law regulating pesticide usage. FIFRA authorizes the EPA to require certification of applicators who want to use restricted use products. In Montana, the Department of Agriculture (MDA) is the lead agency for implementation of applicator training, in accordance with FIFRA. In 1983 the MDA and MSU Extension signed a memorandum-of-agreement for Extension to assist with Private Applicator Training (PAT) and established a set of guidelines. This MOA continues today. The MSU Pesticide Safety Education Program, coordinated regionally by the Extension Pesticide Specialist, ensures local PAT coordinators have the tools necessary to train applicators in meeting these requirements locally.

**What has been done**

The Pesticide Safety Education Program strives to increase the competency of private applicators when using pesticides. This decreases the risk of human and environmental damage caused from pesticide misuse and also increases the profitability and sustainability of land for producers. In 2012, MSU Extension awarded 625 credit hours of material to private applicators. Through 195 recertification programs and 11 initial private applicator programs, 4,875 citizens were directly reached. In addition, 2 TV and Radio news releases and 16 publications were delivered on the topic of pesticide education by Extension. Three tribal programs were conducted on two reservations with 75 tribal applicators participating.

**Results**

Surveys indicated 90% of applicators gained knowledge through the seminars. Eighty percent indicate they will change at least one practice to make their application methods safer for themselves and their families. Because of the efforts of local agents to inform current applicators of deadlines and requirements, as many as 90% of applicators got their credits and renewed their licenses on time and with no problems. The number of casual pesticide users (those not becoming certified but interested in the subject) who brought their sprayer equipment to the clinics for calibration grew exponentially demonstrating an interest and appreciation for the training and safety information.

**4. Associated Knowledge Areas**

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

136	Conservation of Biological Diversity
216	Integrated Pest Management Systems
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**

<b>Year</b>	<b>Actual</b>
2012	659

##### **3c. Qualitative Outcome or Impact Statement**

###### **Issue (Who cares and Why)**

Groundwater quality is of growing concern for private well and septic owners across the state. Families and businesses need assurance that the water they are using is safe for human consumption. Inappropriately protected well heads and improperly functioning septic systems can pose a public health risk and or contaminate groundwater. In Montana, most counties have 20-80% of their residents relying on a private well for their domestic water source. Homeowners on a private well are not protected under the Safe Drinking Water Act and have the responsibility of testing their water and understanding their water quality.

###### **What has been done**

During 2012, the funding source for Well Educated ended. MSU Extension Water Quality (MSUEWQ) was not able to advertise the program and had to raise the administrative fee from \$2.00 to \$5.00 to cover maintenance costs. However, Well Educated received a record number of participants with 659 homeowners testing their water quality; a testament to the growing popularity and need for this program. Since 2005, over 3,800 private well owners have tested their water quality through the program. The MSUEWQ YouTube channel has seen an increase in viewership with the Shock Chlorination of a Private Well video receiving over 30,000 views reaching private well owners not only in Montana but across the country.

**Results**

As a result of the program, well and septic owners are testing their water quality, addressing issues with their well heads and maintaining their septic systems. Outreach activities and data associated with the project have led to focused groundwater studies in both the Gallatin and Judith watersheds and data has been used in public presentations and in conferences to inform Montanans about water quality concerns and how we can work together to protect groundwater resources. The final program evaluation for the Well Educated project was conducted in 2012 which found that 96% of participants would participate again, 17% of well owners identified an issue with their well head, and 91% of participants found the educational materials included with their results informative.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**

<b>Year</b>	<b>Actual</b>
2012	3465

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Rangeland in Montana makes up a substantial portion of the land area and much of it is managed by people involved in agriculture. To maintain healthy and productive range is a priority for these landowners. They need assistance in such things as monitoring their rangelands to determine needs, identifying plants, addressing noxious weed control as well as livestock management systems. The use of GPS and other electronic systems are important tools for producers to target specific issues related to their rangelands. It is important for landowners to stay current on information and technologies that can help them successfully manage their properties.

#### **What has been done**

Nearly 3500 people attended 49 unique workshops/seminars taught by the Extension range specialist, including topics such as the Montana Range Days: Rangeland Health Assessment to Grazing Management After Drought and Fire to MSU Extension Weed Certification Workshop: Targeted Grazing, a Tool for Invasive Plant Management. Agents and specialists answer phone calls and emails requesting specific rangeland management information and distribute resources including MontGuides, Ag Alerts and news releases. Ranch visits, one on one contact, forage testing and ration balancing, Cows and Coffee Seminars, providing nitrate tests and water quality tests are all regular activities of MSU Extension.

#### **Results**

Montana has nearly 65 million acres of public and private rangeland with conditions that vary significantly from one area to another. Extension is successful due to having agents across the state leading one-on-one consultations which add up to statewide impact. In Stillwater County, which supports 35000 cattle and 9000 sheep, the high levels of sulfur, salts, molybdenum and iron in feed and water, make ration formulation and mineral balances extremely significant. The local agent provided range management information to 98 rangeland managers. Some indicated they increased production from ¼ ton/acre to over 1 ton/acre using barley hay. In Fergus County, the agent was able to increase the usable AUMs on 2500 acres of summer pasture by developing a pasture rotation system to better distribute grazing cattle. The ranch had been getting 600 AUMs per summer and increased to nearly 800 AUMs while having less impact on sensitive riparian areas. These examples are replicated throughout the state.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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 catered to them and teachers learned great resources and lessons in the subject all through the MSU Extension Forestry programming. To date more than 1.3 million acres have been directly impacted by these programs.

Small acreage owners were visited directly by Extension agents statewide to learn about noxious weeds, programs for increasing value of forage, the best trees to plant in various areas, and much more. The Big Sky, Small Acres Magazine was widely requested, distributed and celebrated five years of success as a quarterly publication of MSU Extension.

A vast majority of certified Pesticide Applicators received their re-accreditation credentials on time and with no difficulty thanks to the intense efforts of MSU Extension agents to inform them of deadlines, offer local programming and connect resources. New Pesticide Applicators were trained and certified as well with over 80% involved in the overall programming efforts indicating they would make changes to their procedures to be more safe and efficient.

Water Quality continued to be a priority for Extension through the Well Educated Program despite the end of funding. Homeowners had to pay more for sampling and still a record number participated. In addition the MSU Extension Water Quality Program used a YouTube channel to virtually share information. The "Shock Chlorination of a Private Well" video had over 30,000 views nationally.

Extension agents connected with Montanans over Range issues on a one-on-one basis to identify unique conditions and make suggestions accordingly. Through range management techniques shared by Extension, landowners were able to increase the value



and quality of pasture while also reducing the impact on riparian areas.

## Key Items of Evaluation

### FOREST

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

~Surveys showed that skills in implementing improved forest conservation and management practices increased by 44%.

1174 youth and 86 teachers learned about natural resources and developed skills related to forestry, wildlife and noxious weed management.

Overall the programs impacted some level of forest management on an estimated 4,000 acres in 2012 and cumulatively 1,300,000 acres over the past 20 years.

### SMALL ACRES

Small acreage landowners and homeowners gained knowledge of weed identification, the impacts of weeds, laws relating to managing weeds, and effective controls; leading to better overall management of noxious weeds.

Property owners who requested and received site visits reported saving significant costs because they used less pesticide, learned another method of control, used a better product or learned how to use spray equipment more efficiently.

### ENVIRONMENTALLY SENSITIVE SYSTEMS

Surveys indicated 90% of applicators gained knowledge through the Pesticide Application Seminars.

~Eighty percent indicate that they will change at least one practice to make their application methods safer for themselves and their families.

### WATER QUALITY

Gallatin and Judith watershed studies have begun due to the water quality program.

96% of participants in the Well Educated program would participate again.

17% of well owners identified an issue with their well head.

91% of participants found the educational materials included with their results informative.

### RANGE

Some rangeland managers in Stillwater County indicated they increased production from ¼ ton/acre to over 1 ton/acre using barley hay after attending Extension programs.

In Fergus County, the agent was able to increase the usable AUMs on 2500 acres of summer pasture by developing a pasture rotation system to better distribute grazing cattle. The ranch had been getting 600 AUMs per summer and increased to nearly 800 AUMs while having less impact on sensitive riparian areas.

**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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	2.3	0.0	0.0	0.0
Actual Paid Professional	1.7	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
2984	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
90514	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Produce guides on current energy topics.  
 Conduct community meetings on energy topics  
 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.

**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

**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**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	7631	214000	0	100

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

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	3	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Sustainable Energy: 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.  
 Not reporting on this Output for this Annual Report

**Output #2**

**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
2012	257

**Output #3**

**Output Measure**

- Energy and Community: 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.

<b>Year</b>	<b>Actual</b>
2012	4000

**Output #4**

**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.

<b>Year</b>	<b>Actual</b>
2012	2000

**Output #5**

**Output Measure**

- Home Energy Costs: 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.

<b>Year</b>	<b>Actual</b>
2012	30

**Output #6**

**Output Measure**

- Renewable/Alternative Energy: Number of people making decisions about alternative energy opportunities based on Extension information.

<b>Year</b>	<b>Actual</b>
2012	1032

**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	Energy and Community (reservation and non-reservation) 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.
3	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.
4	Home Energy Costs: 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 saving 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).
5	Renewable/Alternative Energy: Landowners/citizens will have tools to make decisions about becoming involved with 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**

<b>Year</b>	<b>Actual</b>
2012	257

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Oil and gas leasing-natural resource permitting has become an issue as production companies seek new opportunities for expansion. Many landowners are unprepared to make informed decisions concerning mineral and water rights.

#### **What has been done**

A series of workshops were offered that included water appropriations, water rights and water used in the hydraulic fracturing process, how a well is drilled and the actual process used to frac a well with in-depth discussion on oil and gas leases. Participants learned about existing water rights, water use by municipalities, water marketing, developing a gravel pit on their property and were given the opportunity to ask questions and hear from the experts on specific topics related to their property. A water well testing program was initiated to help water well owners establish a baseline for water quality at their well. Educational materials were handed out at the workshops and distributed to interested clients.

#### **Results**

Attendees reported feeling more able to make informed decisions when approached by energy companies. One particular participant indicated that a company offered him a 12% share; when the fair percentage is 17-18% or higher. The difference to the landowner could total over \$130,000 in just one year. Participants understood that they could negotiate things like the length of the lease and other considerations.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
131	Alternative Uses of Land
605	Natural Resource and Environmental Economics

## **Outcome #2**

### **1. Outcome Measures**

Energy and Community (reservation and non-reservation) 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.

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	4000

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Consumers are interested in reducing consumption, using more efficient energy sources and learning about 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 the 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. WxTV is available anytime, anywhere. Live episodes encourage viewers to be interactive through a real-time blog. There are more than 90 eLearning modules for trainers. WxTV has 4,000-5,000 monthly viewers and has had 200,000 unique views on the WxTV site and 113,000 on YouTube.

#### **Results**

WxTV was recognized in 2012 at the 33rd Annual Telly Awards Show. The Telly Awards honor the finest film and video productions, commercials, and programs. WxTV earned first place in the category of Documentary Internet/Online Video and second place in the category of Informational Internet/Online Video. The daily use of the WxTV blogs connecting weatherization professionals nationwide and viewership in every state and all territories shows its wide value. Twenty two



states have approved the site for official weatherization training. The channel will soon be available via PBS.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

### Outcome #3

#### 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.

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2012	2312

#### 3c. Qualitative Outcome or Impact Statement

##### **Issue (Who cares and Why)**

Montana consumers have noticed a major difference in their utility bill during the past year; the cost of energy has increased significantly. With higher utility bills consumers (affluent and low-income) are requesting assistance for energy conservation and weatherization, seeking information on energy efficient construction and remodeling and purchasing Energy star appliances.

##### **What has been done**

This program consists of three education efforts: home energy conservation and weatherization methods and materials; EnergyStar product selection; and energy efficient remodeling and new construction. Programming support is provided through the MSU Extension Housing and Environmental Health Program. The center produces and distributes many energy-related educational resources including publications and visuals. WxTV was developed in 2010 and is a weatherization online program that blends expert advice, how-to techniques, innovation, and reality video.

**Results**

As a result of the Extension Weatherization training and certification program, 2312 homes were weatherized at an average labor and materials cost of \$3,502. Annual energy savings associated with weatherizing those homes averaged 26% (\$396/home) and energy consumption was reduced by an average of 33% resulting in a quick return on the investment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
402	Engineering Systems and Equipment
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

**Outcome #4**

**1. Outcome Measures**

Home Energy Costs: 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 saving 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 Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	30

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Montanans have a sincere desire to be efficient and productive and as costs of energy rise and people become more conscientious of wastefulness, there is a great need for better construction practices and use of technology to limit the use of resources.

**What has been done**

A series of classes and workshops, both online and face-to-face have been developed to cover a range of new technologies, materials use, alternative energy and design practices to help

contractors build efficient new homes and to retrofit old ones.

**Results**

Work of the MSU Extension Weatherization Center has led to the creation of the Residential Building Performance Program, a new one-year Certificate of Applied Science training program in the MSU Gallatin College. The hybrid of online and traditional courses, some of them taught by Extension professionals, helps respond to the educational needs of energy efficient construction professionals, local government administrators and State Weatherization Assistance Program professionals.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

**Outcome #5**

**1. Outcome Measures**

Renewable/Alternative Energy: Landowners/citizens will have tools to make decisions about becoming involved with renewable/alternative energy opportunities.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	1032

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Exploring small-scale energy technologies, from small wind to solar hot water and from solar electric to biodiesel; which can be applied to home, farm, or ranch settings, is confusing and complicated for families, farmers, ranchers and business.

**What has been done**

MSU Extension developed E3A (Exploring Energy Efficiency and Alternatives) to make energy decisions easier and more useful for consumers. More than 80 fact sheets full of nonbiased, research-based information are available to consumers online at [www.E3A4U.info](http://www.E3A4U.info) or through the local Extension Office. Information and links on energy decision-making are also found at the site for download. In addition, the E3A toolkit includes lesson plans and resources to help make

teaching energy easy. A blog and Ask an Expert help connect resources with need, as well.

### Results

Consistent knowledge gain was shown based on pre/post evaluation tools. For large classes (over 100), average knowledge gain on a five point Likert scale increased from 1.3, low level of understanding about E3A topics to an average of 3.65, moderate understanding of E3A topics. For a medium class (about 60 participants) knowledge increased by an average of 3 points. Participants indicated the extent to which E3A programming would influence their decisions to implement changes in energy practices was 4.1, on a 5 point scale where 5 is Extreme Influence. As an example, one participant learned that installing a small wind system on his property would not be effective due to his trees and other obstructions, so he focused instead on other energy efficient measures to reduce his consumption.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

### V(H). Planned Program (External Factors)

#### External factors which affected outcomes

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

#### Brief Explanation

### V(I). Planned Program (Evaluation Studies)

#### Evaluation Results

The expense of energy and environmental concerns both contribute to Montanans desire to utilize energy more efficiently and effectively. The goals of this program were each met through careful direct one-on-one interaction with clients, as well as by up-to-date, leading edge networking and use of modern media.

To address the goal of helping agriculture and business entities, Extension offered Oil and Gas Leasing classes to give landowners the information they needed to make careful decisions when approached by companies to sell water and mineral rights. This filled an important need as natural resource exploration expands across Montana.

Montanans were given tips on weatherization and energy efficiency in their homes

directly through the MSU Extension Housing and Environmental Health Program. Professionals trained through the center weatherized 2312 homes saving an average of 26% on energy costs. In addition the program created WxTV, an award winning and national weatherization and training Web show that blends expert advice and how-to techniques in a modern format, gathering more than 200,000 unique views including more than 4,000 monthly viewers.

The MSU Extension Housing and Environmental Health Program invested significant time and resources into creating a one-year Certificate of Applied Science training program, the Residential Building Performance Program which is now offered by the Gallatin College. The hybrid of traditional and online classes responds to the educational needs of energy efficient construction professionals, government administrators and state weatherization assistance program officials.

The Exploring Energy Efficiency and Alternatives (E3A) program effectively packaged materials for classes across the nation to learn about energy alternatives. Creating more than 80 fact sheets full of nonbiased, research-based information on topics including wind, solar and other renewable energy options, and making them available online, along with a blog and Ask an Expert, connected resources directly with need.

## Key Items of Evaluation

### ENERGY AND AGRICULTURE

Oil and Gas Leasing class attendees reported feeling more able to make informed decisions when approached by energy companies. One particular participant indicated that a company offered him a 12% share; when the fair percentage is 17-18% or higher. The difference to the landowner could total over \$130,000 in just one year.

Participants understood that they could negotiate things like the length of the lease and other considerations.

### ENERGY AND COMMUNITY

WxTV was recognized in 2012 at the 33<sup>rd</sup> Annual Telly Awards Show.

WxTV earned first place in the category of Documentary Internet/Online Video

WxTV earned second place in the category of Informational Internet/Online Video

WxTV blogs connecting weatherization professionals nationwide has thousands of hits and viewership in every state and all territories

Twenty two states have approved the site for official weatherization training.

The channel will soon be available via PBS.

### RESIDENTIAL ENERGY

As a result of the Extension Weatherization training and certification program, 2312 households have reduced energy consumption by an average of 33%, and energy costs by an average 26%.

### HOME ENERGY COSTS

Work of the MSU Extension Weatherization Center has led to the creation of the Residential Building Performance Program, a new one-year Certificate of Applied Science training program in the MSU's Gallatin College.

### RENEWABLE/ALTERNATIVE ENERGY

E3A Program training showed consistent knowledge gain based on pre/post evaluation tools.

For large classes (over 100), average knowledge gain on a five point Likert scale increased from 1.3 to an average of 3.65

For a medium class (about 60 participants) knowledge increased by an average of 3 points.

Participants indicated the extent to which E3A programming would influence their decisions to implement changes in energy practices was 4.1, on a 5 point scale where 5 is

Extreme Influence.

**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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	3.6	0.0	0.0	0.0
Actual Paid Professional	0.7	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
13476	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
35015	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 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**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	4106	34956	1021	5577

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	5	0	0

**V(F). State Defined Outputs**

**Output Target**



**Output #1**

**Output Measure**

- Food Safety: Provide 3 train the trainer sessions for County Extension Agents so they can conduct 25 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.)

<b>Year</b>	<b>Actual</b>
2012	3901

**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)

<b>Year</b>	<b>Actual</b>
2012	1226

**Output #3**

**Output Measure**

- Montana Beef Network - 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.

<b>Year</b>	<b>Actual</b>
2012	0

**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.
3	Montana Beef Network-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.

## **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**

<b>Year</b>	<b>Actual</b>
2012	3901

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Food safety is a growing concern for the food service industry and public and private agencies. Many of these groups are now requiring food safety training as they comply with the mandatory USDA policy to implement a School Food Safety Plan. The financial costs of food-borne illnesses for Montanans, nearly 1 in 65 Montanans each year, are tremendous as scarce public tax money covers lost wages, health care, and investigative costs. These losses have wide spread implications, especially for underserved populations and with changes in health care costs, productivity, and the health and economic well-being of children, families and communities.

#### **What has been done**

Basic, 4-hour food safety classes, using the ServSafe Employee Guide or other suitable curriculum are taught statewide to cover the basics of safe food handling, focusing on the four key principles of controlling time and temperature when handling food, ensuring proper personal hygiene, preventing cross-contamination, and proper cleaning and sanitizing. In 2012, 2710 Montanans participated in one of these classes. In addition, 179 Montanans completed the Level 2: ServSafe Food Protection Manager Certification Course. This is a comprehensive, nationally recognized food safety course for food service managers designed to provide food-safe knowledge and skills to maintain a safe establishment.

#### **Results**

Youth were surprised to learn how ineffective their current hand-washing practices were. Many returned to the sinks and rewashed their hands after seeing all the germs revealed by Glo-Germ solution. As a result of the hand-washing exercise all youth indicated they better understood how their personal hygiene and touching other surfaces while preparing food was related to the

transfer of germs. Over 90 percent of the evaluations from ServSafe trainings indicated participants learned controlling time and temperature when handling food, ensuring proper personal hygiene, preventing cross-contamination and proper cleaning and sanitizing. The same percentage indicated that they would use their new knowledge to improve their safety practices.

#### 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

#### 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.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	1226

##### 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. As a result, a renewed effort to provide enhanced programming for home food preservers is necessary to insure they have access to the most reliable information available concerning food safety and food quality.

###### **What has been done**

MSU Extension provides extensive resources for canning and food preservation including a series of nine popular MontGuides which are widely distributed through one-on-one consultations, county fairs, food safety classes, K-12 partnerships, adult education programs, youth cooking projects and more. Extension agents regularly test canner pressure gauges and advise on

equipment and supplies. Food preservation classes in counties and reservations include current, latest research-based procedures for dehydrating, freezing, water bathing and jelly and jam making. One-on-one conversations with the general public to answer specific questions occur on a nearly daily basis.

### Results

Awareness of Extension programming in food preservation is catching on. County and reservation offices report that walk-ins and calls come in nearly every day related to food preservation. MontGuides in this area are among the most requested. Every year more residents bring in their dial gauge canners to their local office to check for accuracy. More and more retailers refer their customers to Extension to assist with canning product selection and to answer questions about repair and quality. Families report that learning how to preserve food that they have learned to grow in their own gardens is a huge benefit to helping them prepare healthy meals and save grocery money.

## 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

### Outcome #3

#### 1. Outcome Measures

Montana Beef Network-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.

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

{No Data Entered}

### V(I). Planned Program (Evaluation Studies)

#### Evaluation Results

In addition to offering classes and teaching lessons in schools, Extension agents regularly answer calls and receive drop-ins who have questions in these topic areas. In many counties, Extension is the place to go for questions related to canning, equipment and supplies needed in food preservation and food safety. The success of this program area is most apparent in the fact that Montanans look to Extension for the latest and most up-to-date scientific information related to food safety and preservation.

### **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.

Results as follows:

#### **FOOD SAFETY**

100% of youth indicated they understood, post-training, how their personal hygiene and touching surfaces while preparing food was related to transfer of germs

90% of adults in ServSafe trainings learned the importance of controlling time and temperature when handling food, ensuring proper personal hygiene, preventing cross-contamination and proper cleaning and sanitizing

90% indicated that they would use their new knowledge to improve their safety practices

#### **FOOD PRESERVATION**

MontGuides related to food preservation are among the most requested.

Agents reported having calls or drop-ins with questions about food preservation on a nearly daily basis.