

**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: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	3.4	0.0	0.0	0.0
Actual Paid Professional	4.6	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
83963	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
152446	0	0	0

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

#### 1. Brief description of the Activity

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

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

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

#### 3. How was eXtension used?

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

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

#### 1. Standard output measures

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

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

**Patent Applications Submitted**

Year: 2013  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2013	Extension	Research	Total
Actual	28	0	28

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

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	374

**Output #2**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
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2013 500

**Output #3**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	5350

**Output #4**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	304

**Output #5**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	565

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

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

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

## **Outcome #1**

### **1. Outcome Measures**

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

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

- 1862 Extension

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2013	374

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

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

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

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

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

### Results

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

### 4. Associated Knowledge Areas

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

### Outcome #2

#### 1. Outcome Measures

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

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2013	500

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

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

There are a growing number of families living on small acreages ranging from 5-30 acres. In general their knowledge about land stewardship is limited so Extension is often contacted for information about weed control, pasture management, water quality and quantity and resource

management, among other issues. A recent survey of 100 current or recent subscribers of the Big Sky Small Acres Magazine indicated that 99% of respondents were interested in information about wildlife on their property. A similar survey of all Extension agents in Montana showed that more than 80% of respondents received questions related to wildlife.

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

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

#### **Results**

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

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

<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
2013	5350

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

**Issue (Who cares and Why)**

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

**What has been done**

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

**Results**

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

**4. Associated Knowledge Areas**

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

## **Outcome #4**

### **1. Outcome Measures**

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

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2013	304

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

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

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

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

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

#### **Results**

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

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

#### 4. Associated Knowledge Areas

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

#### Outcome #5

##### 1. Outcome Measures

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

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2013	571

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

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

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

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

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

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

#### **Results**

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

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

<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 developed for them and teachers learned how to use a curriculum designed to share principles of stewardship with children in a school setting. In addition, MSU Extension Forestry offered the primary training programs for the Montana Logging Association and Montana Tree Farm Program, helping improve logger and landowner service provider knowledge and skills regarding ecologically sustainable forestry practices.

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

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

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

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

### **Key Items of Evaluation**

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

13,413 acres were impacted through 2013 Forest Stewardship classes and an

additional 6,927 acres through stewardship advisor visits and plan updates with past stewardship workshop attendees.

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

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

- More than 70% of respondents indicated they were "interested" or "very interested" in information about weed management, horticulture, wildlife and habitat, water management, insects/pests.

- 86% indicated the magazine makes them feel connected to Montana State University Extension
- 68% indicated they have put into practice things they learned from the Magazine
- 28% indicated they contacted their local Extension office for more information because of the Magazine

- 33% indicated they utilized additional Extension resources that they learned about from the Magazine

- 54% indicated they shared articles from the magazine with others

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

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

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

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

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

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

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