

## Partnerships Strengthen Communities

2015 has been a great year for the Missoula County MSU Extension Service/Weed District Department, thanks to the leadership skills of the staff and the people we serve to come together to build and deliver programs

Highlights of the year include hosting the statewide biological weed control coordination program. Thirty-four partners have come together to fund and to build lines of communications with other states and Canada on biological weed control technology. Melissa Maggio, Biological Weed Control Coordinator, has added to the list of partners in making biological weed control technology available to Montana land managers.

Governor Steve Bullock appointed an Invasive Species Council in December 2014 due to the need to improve communication and coordination among the many organizations that are working on the terrestrial and aquatic invasive species. Bryce Christians, Missoula County Weed District manager, was chosen to chair the Invasive Species Council. So far, 14 organizations are providing funding for the work at the council, which includes a needs assessment and developing a list of recommendations for the 2017 legislature.

Additional funding has enabled the Family and Consumer Science program to expand programs on food preservation, human nutrition and financial literacy. All are increasing needs in Missoula.

### Welcome to Missoula County

In addition to the second largest estimated population base in the State of Montana (US Census Bureau), Missoula County is diverse with a myriad of needs and challenges to be met. Missoula has been coined the Garden City because of its mild climate and market gardens which lined the Clark Fork River generations ago. Missoulians' eagerness to learn and tackle their own challenges has encouraged the development of many resources and programs to support these endeavors. Missoula County Extension and Weed District strives to keep up with these challenges and stay one step ahead to better support the community.



**View of the Rattlesnake recreation and wilderness area from PEAS farm in Missoula.**



**Jerry Marks appreciating a little down time at the joint Extension/Weed District demonstration booth during a busy 2015 fair. Photo credit: The Missoulian.**

There are many other examples of partnerships and people learning together to improve our social and economic well-being throughout this report. The Department is an excellent community resource. Contact us for your information needs.

- Nearly 2,000 emails, calls, or walk-ins serviced by the Plant Clinic
- Ten horticulture classes and workshops
- Initiation of two multi-year on-farm research projects
- Nearly 70 landowner grants administered by the County Weed District
- Seven active cooperative weed management areas
- Youth weed education with over 40 classrooms and nearly 900 students
- Fourteen 4-H clubs with over 400 kids and nearly 500 fair exhibitors
- EFNEP education to nearly 800 students and 60 adults
- Twenty FCS classes and workshops

## Annual Strawberry Production Trials

When we actually take the time to think about where our strawberries come from, it may be difficult to nail down a source. You may have a small collection of plants in the backyard garden, or you may be lucky enough to live in a town that has a u-pick strawberry farm. Generally speaking, Montana does not have much for strawberry production, just 13 acres for the entire state in 2012 according to the USDA National Agricultural Statistics Service. It is not because our state is too cold to grow strawberries; Minnesota in comparison, has nearly 600 acres of strawberries in production (USDA NASS, 2012 Census of Agriculture). Anybody who has grown strawberries in their backyard or farm knows that despite their dainty white flowers and ruby gems, these plants can be a mess to deal with. Weeding is a challenge, pest and diseases management can be a never ending battle, and spring and fall maintenance is a hassle. What makes strawberries more of a challenging crop is that contrary to the efforts required for maintaining the crop, there is a small window of consolidated

harvest for June-bearing plants, and smaller yields over a longer season for ever-bearing varieties. This means that there is a lot of expended energy and labor over a period when the plants are not producing.

Yet, there is a huge market opportunity for Montana producers to integrate strawberries into their existing production systems.

In 2015, with the support of funds from the USDA/ Montana Department of Agriculture Specialty Crop Block Grant Program, Missoula County Extension began working with producers in Western Montana and faculty at MSU to initiate a three-year study to investigate alternative strawberry production strategies. In particular, we will be evaluating the efficacy of annual strawberry production in high tunnels, particularly focused on June bearing varieties. High tunnels are the unheated hoophouses that are employed by many small producers in our region to stretch the short growing season out on both ends and to support the growth of some warm



**High tunnel annual production trial plot at the MSU Western Agriculture Research Center in Corvallis, MT.**

season crops. Strawberries are a perennial plant that typically are productive up to three to five years, but if we treat them as an annual crop we can eliminate much of the required maintenance. Treating this crop as an annual will also allow a producer to grow the plants entirely during the productive state, and open up planting space for alternative crops once the strawberries have been removed. Typically June-bearing strawberries in Montana are grown in a matted row system where a single row of plants is lined out in the middle of a two foot (or wider bed). The plants are planted in the spring, and the entire first year is dedicated to establishment of the beds through the stolons (runners) and no fruit is harvested. This requires a significant amount of maintenance with no return until the second season when the plants bear fruit for a small window in early summer. Contrary to the conventional matted-row system, the plants in the annual system will be planted in the late summer/early fall at a much higher density. The plants will then produce fruit the following spring and the plants will be immediately removed. Once the plants are removed, the production bed can be used for an alternative crop, thus maximizing the return on the available planting space. Additionally, the integration of high tunnels for the annual system will likely result in an earlier harvest.

We began trials in the spring of 2015 to investigate the viability of the annual strawberry production system in Montana in comparison to the conventional matted-row system. We partnered with six producers and the MSU Western Agriculture Research Center to host production trial sites in Missoula County and across Western Montana. This production strategy could allow for producers in our region with existing infrastructure to add a high-value crop to their production system without sacrificing the production of other crops. Additionally, earlier harvests driven by high tunnel production may provide producers selling direct at farmers markets, a unique draw for customers. Customers drawn to early, local strawberries may end up purchasing additional products from that producer/vendor. Data collection will begin in the spring of 2016. Field days and outreach will follow to share the results and demonstrate the practice with interested producers and hobbyists.



**Many hands make for light work. Planting trial plot at the PEAS farm in Missoula.**

# Extension Plant Clinic

## Community Support through The Plant Clinic

The Missoula County Extension Plant Clinic provides leadership and educational opportunities to the public on the identification and integrated pest management practices (IPM) of plant diseases, pests and related plant health problems. The Plant Clinic worked with USDA-APHIS, Montana Department of Agriculture, and the MSU Schutter Diagnostic Lab on invasive species, insects and plant diseases. The Plant Clinic also informs the public on new insect and plant disease problems in the Missoula area.

Through various practices, the Plant Clinic strives to assist Missoula County residents with their horticulture problems. The Plant Clinic continues a trapping program to help predict the most efficient times for spraying insects that damage fruit crops. Through the pest alert hotline, we are able to disseminate timely management guidelines to the community derived from insect and plant disease issues identified through regular field monitoring. In some cases, horticultural problems may be quite complex. Throughout the growing season the Plant Clinic occasionally conducts field visits to diagnose these more challenging or time sensitive horticultural problems in Missoula and surrounding areas. Besides occasional field visits and communication via the pest alert hotline, the primary role of the Plant Clinic is managing daily calls, emails, and walk-ins at the Plant Clinic to identify insect, plant, and disease samples. Diagnoses of plant and pest problems, as well as management options, is a valuable and highly utilized community resource. Proper identification and diagnosis are essential to managing plant problems successfully and to minimizing economic and ecologic impact.

Extreme weather events have become commonplace and this past year was no different. A sudden drop in temperatures in November of 2014, as well as drought-like conditions, created numerous complex plant problems in the region. The Plant Clinic responded to concerned residents to help figure out the best solution for their situation. In addition to the ongoing drought and freeze damage, a 70 mph wind storm in August created many toppled trees. The



**Adult Emerald Ash Borer**

Plant Clinic assisted in scouting for invasive species such as Emerald Ash Borer in the piles of debris that were collected around town.

## Additional Support and Outreach:

- Helped staff the Extension/Weed District booth at the Clark Fork Farmer's Market and at the Western Montana Fair to answer questions and to promote the office's abilities to solve problems and to educate people;
- Partnered with the FCS agent to provide classes on growing a container salad green class called seed to salad – provided 25 people plus an audience at a Grizzly Peak retirement home with fresh greens and a tasty salad with fresh dressing.



**Seed to Salad workshop at the Missoula County Extension office.**

- Instructed a class on making dried apple wreaths – showing several designs and how delicious dried fruit is.
- Grew a straw bale demonstration garden that was used as a display at the Weed/Extension booth at the Western MT Fair. A straw or hay bale garden is a gardening method used for raising vegetables, herbs, and flowers directly on a bale.



**Straw bale garden, part of the Extension/Weed District demonstration area at the Western Montana Fair.**

## Extension 4-H

### 4-H Camp prepares Teens for Success

The top two skills employers most desire in 2015 graduates are 1) the ability to work in a team structure, and 2) the ability to make decisions and solve problems, according to a November 12, 2014, article on *forbes.com*. Research reported in the *Journal of Extension* shows that youth gain multiple benefits from 4-H camp experiences in the areas of leadership, character development, self-esteem, decision-making, independent living and citizenship (Hedrick, Homan, & Dick, 2009).

Throughout the months-long selection, training and planning process, 22 teens from Missoula, Sanders, Lake and Mineral

Counties prepare to serve as camp counselors for up to 70 local youth, ages 8 through 12, at the week-long Multi-County 4-H Camp held in Ferndale, MT. Key components of the training are team-building and communication exercises, decision-



4H camp staff. Photo credit: Meghan Phillippi

making scenarios, and in-depth discussions about child development stages, so the campers are provided with an experience that is safe, educational and fun.

Before they can become a camp counselor, teens have to complete an application, be chosen by the selection committee, and participate in at least 24 hours of planning and training before camp begins. On their application, teens with previous camp experience were asked how being a camp counselor had impacted their lives.

**"I have learned to be a positive role model and know others are watching...always make the right decision even when no one is looking and put 110% into everything."  
-4-H multi-county camp counselor**

While camp is supported by adult staff, the teens plan and run a majority of the educational workshops, and all of the evening programs, flag ceremonies, campfire programs and cabin time. Many of these teens were 4-H campers themselves in years past. When asked why they wanted to serve as a camp counselor, one Missoula teen said "...I love how it feels when your cabin works as a team to get things done. Also, being a role model to these kids is something I don't take lightly. They look up to us...."

## Extension EFNEP

### Buy-Eat-Live-Better

For 50 years, MSU Extension's Expanded Food and Nutrition Program (EFNEP) has assisted limited resource audiences in gaining knowledge, skills, and attitudes, to change behaviors necessary for healthier diets. EFNEP targets youth and limited-resource adults with children under the age of 19, and reaches individuals through series of lessons and demonstrations.

Our adult program "Eating Smart, Being Active" was held in several locations around Missoula County. One group taught at the Missoula Food Bank, learned how to stretch their food dollars and did not run out of food at the end of the month. Participants also learned to plan and prepare meals based on the USDA "My Plate" guidelines, and to make healthier food choices, as well as increase their physical activity. One hundred sixty four family members in Missoula County were impacted by the 60 participants who graduated. Missoula EFNEP welcomed two new nutrition educators this year: Grete Homer and Brittney Keller. As a result we are looking forward to increasing participation of families and youth.

Nutrition educators from Missoula County taught the USDA "My Plate" curriculum to first, third, and fifth graders in schools with at least 50

percent of the student population receiving free or reduced price meals.

The series was taught over a six week period to 771 students. Learning this information on healthy nutrition and physical activity resulted in 76 percent of students eating more fruits and vegetables and 85

percent participating in more physical activity. The summer Flagship programs at Franklin and Lowell schools were one of the youth programs that received a series of six lessons. The nine to eleven year olds who participated liked tasting the vegetables and fruits and doing the physical activities with water, especially on the hot summer days!



**New EFNEP Nutrition Educators, Grete Homer (L) and Brittney Keller.**

# Extension Family and Consumer Sciences

By Kelly Moore

As a MSU/Missoula County Extension Family and Consumer Sciences Agent, I am always humbled reading the memoirs of courageous women and men who helped shape the world as we know it today. Through hardship, sacrifice, and triumph, communities were born. From those communities and the surrounding rural areas, came dedicated educators compelled to improving and extending the lives of fellow citizens. Providing information that led to the improvement of skills, expanding knowledge, simplifying techniques, and organizing supportive neighbors; the first County Extension Agents carried out their appointed duties daily. It meant traveling on horseback miles between homes—through the scorching heat of August and blinding snowstorms of February.

These days, the job title is certainly more challenging to remember (FCS takes up less space), and funding challenges have replaced the challenges of facing unpredictable weather. But through it all, the ultimate goal remains the same. The work of a Family and Consumer Sciences Extension Agent is ultimately done “so that we may have a more healthful, happy, intelligent, efficient, and contented population” (Blanche Lee, 1926, from *Voices of American Homemakers*). Meeting the needs of the population requires listening to their questions, being sensitive to their quickly changing interests, and being patient while they develop their commitment to having those questions answered. Prioritizing programs is a constant challenge. Creating community partners to help you do that is an important piece of the Extension puzzle.

A priority has been and continues to be the development and expansion of local foods and promoting community sustainability. Purchasing and consuming locally grown food is an excellent way to support the local economy and improve the health and well-being of Missoula County. Educating local consumers about the produce that comes fresh from local gardens or from the Farmer’s Market, the added nutritional benefits of using fresh ingredients, and demonstrating food preservation techniques is a large part of what I do in my

FCS program. This past year, our canning classes were held at a new commercial kitchen (Moonlight Kitchens) in Missoula. The owners, Ann and Pat Little have been great supporters of Extension nutrition /food preservation programs.



Canning class at the Moonlight Kitchen.

Twenty-five participants took part in our introductory water bath canning, salsa and barbeque sauce making classes. Our monthly **Lunch and Learn Series** covers a variety of trending topics: From Seeds to Salads (with Sandy Perrin, Missoula County Extension Plant

Clinic Coordinator), Growing Your Own Microgreens (with MSU/Missoula County Horticulture Extension Agent, Seth Swanson), dehydrating fruit, making orange marmalade, and S’mores-the Real Thing, just to name a few. These hour-long classes pack a lot into a short amount of time! Demonstration, information, and hands-on learning create the perfect lunch hour for nearby offices. Requests have been made for offering evening classes as well.

Good financial decisions can be better made with a good financial education background. Youth are particularly receptive to being a part of something that focuses on fun while learning some very important life concepts. *Reality Store* is a real life simulation, adapted



Reality Store youth financing workshop in Missoula

from various national Extension programs, that introduces kids to the challenges, responsibilities, and rewards of becoming adults. Upon randomly choosing a job, a family size, and an income, students must visit each booth representing a business or service; grocery store, bank, transportation, entertainment, insurance, etc.

Chance cards are also passed out randomly so that the students realize the importance of having a back-up plan. Financial strategies are shared and discussed at the end of the program. The pilot program is currently being done with Missoula County middle-school 4-H participants. The first session brought great feedback from the 25 participants. The second session will be held in January 2016, and a community-wide event involving all Missoula County middle-schoolers is being discussed for 2016.

**“I learned that money isn’t easy to earn. I learned that you have to manage your money carefully because now I know more about how much things really cost. I learned to be smarter with money and that it’s better to share an apartment! I learned that taxes are a pain in the butt!”**

*-Reality Store youth participant*

Whether it’s a phone call (average of 3-4 calls/week) about canning smoked trout, the safety of refrigerated food after a power outage, how to get out an oil stain out of a leather coat, getting a pressure gauge tested for accuracy, or what wheat variety has the highest nutrition for feeding peacocks (I know that’s not my area of expertise, but it was a beneficial conversation before I forwarded the call), the daily grind of a Family and Consumer Sciences agent is anything but that!

**“To step out to lead and to teach, and to see need. This is the part of Extension work that is really great-to look beyond ourselves and see the need of the community.” Sarah Ball, 1945-Oklahoma**

# Weed District

The mission of the Missoula County Weed District is to promote and maintain healthy vegetation by minimizing the ecological and economic impacts of noxious weeds. To accomplish this, staff and programs are organized around the categories of: Prevention, Education, Survey/Inventory, Cooperative Weed Management Areas and Research.

Education, specifically landowner-driven programs, are critical to a successful vegetation management program. By focusing our adult education on the questions/concerns that Missoula county landowners have regarding invasive species, we not only help educate landowners on the issues they want most, but also help focus the questions that our research community prioritizes for their work. Missoula County sponsors two major adult education series each year: Healthy Acres and Building Bridges.



**Weed Identification workshop**

## Healthy Acres

Missoula County's Healthy Acres Seminar provides a forum for landowners to meet their neighbors and learn about the land management issues that most affect the health of their land, communities and watersheds. Each year, the seminar is held in conjunction with landowners from a different Missoula County watershed, allowing us to focus resources and training on the natural resource management issues that are the highest priority for their communities. While the ultimate goal of the seminar is to promote healthy land and vegetation management, it also works to encourage landowners to talk with their neighbors and build community relationships by having landowners teach and help each other through their own experiences.

In 2015, the Healthy Acres Seminar was held at the Ninemile Community Center, in the northwest corner of Missoula

County. Many landowners in this area own and manage lands that are a mix of forest and grasslands; management topics touched on both. Participants worked through hands-on presentations on the identification of native, introduced and invasive grasses in Montana, as well as the development of forest management plans for their properties that focused on creating resilient forest structure. Participants also engaged in discussions on managing plant communities for bee and pollinator habitat/diversity, and the impacts that climate change may have on invasive species and local plant community types.

## Building Bridges

Missoula County Weed District works to inform landowners of the most recent Weed research or management concerns via our Building Bridges workshops and field tours. Building Bridges works to bring together a research community that is divided into a number of diverse agencies and expertise to improve dialog and support for organizing groups and/or mini-conferences around management-based research needs. Local land managers play a crucial role by collaborating with the weed district and the research community to develop research questions and provide possible research sites.

Montana faces challenges from more than just terrestrial invasive species; public awareness of new invaders is key to their prevention. As a result, the 2015 Building Bridges field tour focused on a broad spectrum of aquatic invasive species; from plants to bullfrogs. Four speakers traveled with us to four different sites in western Montana to discuss four very different aquatic invasive species: zebra and quagga mussels, flowering rush, yellow flag iris and American bullfrogs. Presentations covered how they spread, the damage they can cause, and what managers and researchers are doing in Mon-



**Healthy Acres workshop**

# Montana Biological Control Coordination Project

The MT Biocontrol Coordination Project hired a coordinator in October 2013 that works out of the Missoula County Weed District and Extension office. After two field seasons working with land managers to incorporate biocontrol into their weed management programs, all but nine of Montana's 56 counties have worked with the project to either obtain biocontrol agents through project coordinated collection days or have hosted the coordinator for a workshop or presentation.

Over the course of the two years, approximately 2.25 million biocontrol agents have been distributed throughout Montana, with a smaller number of releases going to neighboring or partner states. The recipients of the insects throughout MT are encouraged to establish local insectaries. Montana is diverse in many ways but the varied climatic conditions are what primarily impacts biocontrol success from one part of the state to another. If there are insectaries established throughout Montana, not only are they more convenient for collectors from all corners of the state but the insects will also be locally adapted.

The Project has coordinated 34 workshops or given presentations at 29 locations throughout Montana in the last two years. These workshops/presentations have all been unique to that area or group's specific wants or needs. The following will highlight two workshops the Project coordinated in 2015.

## Bison Range Workday

In June, the MT Biocontrol Project worked with the National Bison Range to coordinate a Dalmatian toadflax biocontrol education and work day. Twenty-three attendants gathered at the visitor center for presentations on the biology and biocontrol of Dalmatian toadflax and a history of biocontrol on the Bison Range. We then caravanned to a part of the Bison Range that the public does not typically have access to. At this site we collected approximately 13,000 Dalmatian toadflax stem-weevils (*Mecinus janthiniformis*) from a toadflax infestation that will likely crash in the near future due to the large population of stem-weevils present. These insects were then relocated to a toadflax infestation in another part of the Bison Range where weevils were present but in much smaller numbers than what is needed to manage Dalmatian toadflax.



Bison range workday.

## Montana Land Reliance Spotted Knapweed Biocontrol Workshop Series

The Montana Land Reliance (MLR) partnered with the MT Biocontrol Project and Missoula County Weed District to put on a series of workshops in Ninemile, Condon, and Kalispell. These workshops were open to anyone but the intent was to provide information to the Conservation Easement holders within those areas. Over 50 participants attended three workshops in August. Each workshop was similarly formatted, with presentations covering biocontrol basics, spotted knapweed biocontrol, and integrated weed management before heading out for a field portion including an insect release and reviews of release site monitoring and collection techniques.



Knapweed biocontrol workshop.

# One Small Step for Man...

July of 1969 marked two significant events in history. On the 21<sup>st</sup> of that month, Neil Armstrong and Buzz Aldrin stepped out of the Apollo 11 space capsule to become the first humans to step foot on the surface of the moon. This was no doubt a monumental and figurative step for the progression of mankind. Seven days before that, Jerry Marks stepped foot in the Missoula County Extension office to embark on a lasting career. This past year, his forty-fifth year of service was celebrated by the Missoula County Commissioners, friends, and family. Jerry has built the Missoula County Extension program from a one man show to a collaborative staff in Missoula County Extension/Weed District office today. As evidenced by his white hair, it has not been easy, but the impact is lasting.



With a little assistance, Jerry Marks accepts a few kind words from Missoula County Commissioner Jean Curtis.

## Contact Us



### EXTENSION

[www.msuextension.org](http://www.msuextension.org)

### Missoula County

Missoula County Extension  
2825 Santa Fe Ct.  
Missoula, MT 59808

Phone: (406) 258-4200

E-mail: [missla1@montana.edu](mailto:missla1@montana.edu)

Web: [www.missoulaeduplace.org](http://www.missoulaeduplace.org)

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**Gerald Marks**  
Extension Agent, Department Head

**Campbell Barrett**  
Extension Agent, 4-H

**Lindsey Bona-Eggeman**  
Weed Management Coordinator

**Bryce Christiaens**  
Weed District Manager

**Sharon Gaffney**  
Administrative Assistant

**Ashley Juran**  
Weed Prevention Coordinator

**Jean Jenkins**  
Financial Coordinator

**Grete Homer**  
EFNEP Nutrition Educator

**Brittney Keller**  
EFNEP Nutrition Educator

**Jed Little**  
GIS Data Coordinator

**Melissa Maggio**  
MT Bio Weed Control Coordinator

**Kelly Moore**  
Extension Agent, FCS

**Sandy Perrin**  
Plant Clinic Coordinator

**Diann Pommer**  
Extension Agent, EFNEP

**Steffany Rogge-Kindseth**  
Weed Education Coordinator

**Seth Swanson**  
Extension Agent, Horticulture

**Colleen Terrazas**  
Administrative Assistant, 4-H