

# Montana Pesticide Bulletin



MONTANA  
STATE UNIVERSITY

EXTENSION

May 2009

## Safety for Homemade Remedies for Pest Control

by Cecil Tharp, Pesticide Education Specialist, Montana State University

Homeowners and applicators are searching for new and innovative ways to prevent pests from damaging their gardens, trees or homes. Information on alternative pest control options are readily available using the World Wide Web, some of which are termed 'Natural' or 'Homemade'. The term 'Natural' is often misleading and could be better termed as a botanical (plant derived). Many botanical pest control options may be available around the home. Some botanical pest control options would include Rhubarb plants (active ingredient oxalic acid) or Chrysanthemum Flowers (active ingredient pyrethrum), while some non-natural remedies that are still homemade pest remedies may include using cigarettes (nicotine), gasoline or kerosene. Because these pest control options are found around the home, they are often viewed as safe. A lack of a product label does not imply they are safe under all circumstances. Always know your pesticides mode of action and the health risks it poses to you, other non-targets and the environment. Some high risk home remedies should be used only after following safety precautions. Some examples follow.

**Cigarettes.** Some recipes call for the extraction of nicotine from cigarettes through different means. Any pesticide recipes using nicotine should be used with caution. Nicotine, derived from tobacco plants, is a potent insecticide that acts on the insect nervous system causing mortality (depending on the dose). Nicotine also has high mammalian toxicity (humans, dogs, cats, horses, cattle, etc.). According to oral toxicity trials,



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nicotine is more toxic than many commonly used synthetic pesticides including resmethrin, Banvel

(dicamba), malathion, and 2,4-D towards mammals. Doses extracted from cigarettes for use in pest control are often much higher than doses one would receive from one cigarette or pinch of snuff. High doses of nicotine may cause a stimulatory effect initially followed by nausea, cardiac arrest or respiratory problems. Nicotine has also been correlated with developmental effects on unborn babies. Many other synthetic pesticides which contain precautionary statements use derivatives of nicotine as the active ingredient in pest control (Gaucho, Provado, or Admire).

**Rhubarb.** Though the stems of rhubarb can be ingested, the leaves contain a higher concentration of oxalic acid. Oxalic acid may be extracted from rhubarb leaves through a cooking process and is often prescribed in aphid control. Oxalic acid has been associated with deaths of goats, swine, and humans through ingestion of high quantities of rhubarb leaves. Oxalic acid poisoning is similar to heavy metal poisoning. Twenty-five grams of oxalic

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acid will cause death to a 145-pound individual. The ingestion of small quantities of rhubarb leaves may leave you nauseated, while ingesting concentrated oxalic acid after processing may be toxic. Symptoms include gastrointestinal problems, nausea, vomiting, respiratory problems, esophageal swelling, and suffocation.

**Chrysanthemum Flowers.** Pyrethrum may be extracted from a common urban flower, 'The Chrysanthemum Flower' (*Chrysanthemum cinerariaefolium*, *C. cinereum*). Methods vary from chopping and soaking flowers in a bucket, to obtaining pyrethrum concentrate through a grinding (flowers), boiling, and percolation process. Pyrethrum is one of the most commonly used home and garden insecticides in the United States. This pesticide is highly selective towards insects by targeting the insect nervous system through disruption of the sodium ion channel. Pyrethrins have low toxicity towards mammals due to mammalian enzymes which breakdown this chemical quickly. However, mild symptoms of poisoning are reported across the United States. In 1991, over 9,000 calls reported pyrethrin (or

pyrethrin + a synergist) to the EPA with only organophosphates having more reports. These symptoms tend to range from dizziness, headaches, and allergic responses including skin rashes, asthma, and hives. Symptoms seem to be dependent on individuals with a genetic predisposition towards allergic responses to other factors. This chemical causes high mortality towards bees and other non-targets. Most of these reports are due to misuse of the product and not reading the product label.

Care should be taken when applying any homemade remedy around beneficial insects. Many homemade remedies cause mortality towards ladybeetles, pollinators, ants, and spiders.

**Solution.** Homemade pest control remedies are another viable option for controlling pests and many (including the use of soap and water) have very little risk associated. Negligence with your home remedies may cause risks towards you, your pets and/or family. Follow these steps to minimize risks when applying pesticides:

- Use preventative techniques to minimize applications (water deeply, fertilize, aerate, increase mowing

height, plant resistant varieties)

- Use registered pesticides when possible and follow the product label.
- Do your homework. Understand your active ingredient and safety risks associated. This includes mode of action, safety, non-target, and environmental risks.
- Use all homemade pesticides immediately. Do not store.
- Only produce the amount of homemade pesticide remedy needed for immediate use.
- Do not leave homemade pesticides unattended or spray near children, pets, and other family members.

All regulated pesticides have been tested for human and environmental risks, with clear recommendations on how to use the product in an effective manner. It may be safer to purchase some chemicals over the counter which have a product label and contain similar chemical active ingredients. Most home pest control remedies are valuable tools that pose minimal risks if used appropriately.

For more information contact Cecil Tharp, Pesticide Education Specialist, MSU Bozeman ([csharp@montana.edu](mailto:csharp@montana.edu), (406) 994-5067).

## School IPM in Montana

*by Amy Bamber, Groundwater & Special Registrations Manager, Montana Department of Agriculture*

EPA Region 8 has offered the Montana Department of Agriculture (MDA) funding to facilitate the implementation of School IPM in Montana.

Integrated pest management, or IPM, is a system used in many schools around the county to better control pests while reducing pesticide use. Similar to the use of IPM in an agricultural setting, School IPM emphasizes knowing what pests are present and why they are there. The next steps are fixing areas where pests get into the school (screens, door sweeps), changing behaviors (making sure garbage bins are lidded), and monitoring for the presence of pests. In a School

IPM system, pesticides may still be used, but generally only as a last resort, not as a part of normal maintenance.

Around the country, schools using School IPM have significantly reduced pest problems as well as pesticide applications, and while there is an initial cost of transitioning to School IPM, there is no increase in cost for pest management through time.

This August, Montana is hosting a regional Children's Environmental Health summit in Missoula. MDA has been involved in the development of the summit, which will focus on schools and

daycares. Some of the country's most active School IPM participants will share their experiences with our Montana schools and daycares. MDA hopes that after the summit, a school district will express an interest in transitioning to School IPM, and that EPA funding can be used to provide training to school district personnel to assure IPM practices are effectively implemented.

School IPM is an effort that requires both the school district and the community to come together. If this is something that interests you, please talk to your schools and let them know that you support School IPM.



# Cheatgrass: A Growing Problem in Montana

By Jane Mangold, Invasive Weed Specialist, Montana State University

Cheatgrass (*Bromus tectorum*), also known as downy brome, has been increasing in the past few years across range and crop systems in Montana. Native to southwestern Asia, cheatgrass was accidentally introduced to North America in several independent events. Its presence was first reported in the late 1800s and since then it has spread to become one of the most problematic weeds in the West.

Several biological traits of cheatgrass contribute to its success. Cheatgrass is a winter annual, meaning it usually germinates and emerges in the fall and grows rapidly until cold temperatures arrive. Seedlings resume growth in the spring, flowering and producing seed faster than most neighboring plant species and outcompeting them for soil moisture and nutrients. Other traits that contribute to cheatgrass' success are high seed germination rates, even at relatively low temperatures, and rapid growth rates. These traits put competing seedlings at a disadvantage, making restoration of cheatgrass-infested range/wildland or control of cheatgrass in winter wheat especially difficult.

As an annual, cheatgrass relies on seed production to ensure its survival from one generation to the next. Management of cheatgrass should focus on preventing seed production and depleting the soil seedbank. Integrating multiple control measures is critical because cheatgrass is, by its nature, very difficult to control. For example, it is somewhat tolerant to chemical control relative to other weedy plants. Its control is further complicated by the fact that we are often attempting to eliminate it from a plant community that is dominated by species of similar growth form (i.e. grasses), and the risk of damage to non-target vegetation is high.

In range systems cheatgrass should be managed using a combination of prevention, herbicides, grazing, mowing, and revegetation. Cheatgrass growth often begins earlier in spring than other vegetation, so targeting for control in early spring is ideal. For example, grazing or applying glyphosate before other vegetation is actively growing can be effective. Because cheatgrass often forms extensive stands that can be nearly monospecific, revegetation in combination with chemical control

is often recommended. For example, applying Journey® (imazapic + glyphosate) and seeding desirable, competitive vegetation in the fall may assist in rehabilitating cheatgrass-infested areas. Recently Matrix® (rimsulfuron) and Landmark® (sulfometuron methyl + chlorsulfuron) were labeled for use in rangeland restoration and may prove effective for range troubled by cheatgrass.

In small grain cropping systems, preventing the production of cheatgrass seeds in years when spring crops are grown and during fallow periods can reduce its abundance in subsequent winter wheat crops. Other approaches include changing crop rotation and enhancing crop competitiveness by increasing seeding rate and decreasing row spacing. More information can be found in the MSU Extension MontGuide Cheatgrass: Identification, biology and integrated management (MT200811AG; <http://msuextension.org/publications/AgandNaturalResources/MT200811AG.pdf>).



J. PETRY 10-26-08



# Pesticide Disposal Program

By Beth Eiring, Agricultural Specialist, Montana Department of Agriculture

## Pesticides Collected in 2008

The 2008 Pesticide Disposal Program disposed of 31,018 pounds of old, unwanted and unusable pesticides from 72 businesses and individuals in the Kalispell, Missoula, Butte and Bozeman areas. A chemical manufacturer in Butte contributed the largest quantity totaling 7019 pounds.

Most pesticide products that were collected have not been registered in many years including mercury seed treat, endrin, dieldrin, and DDT. Several individuals brought in decades old products for disposal, some with no idea what they had. Most of these products were found when cleaning out family property or discovered after purchasing a new property.

The 15-year-old program is supported through collection charges and license

fees. During its fifteen year history, the Pesticide Disposal Program has collected 320,684 pounds of waste pesticides.

## 2009 Program

In September 2009, the program will hold collections in Chester on Sept. 15, Great Falls on Sept. 16, Lewistown on Sept. 17, and Big Timber on Sept. 18. While exact locations are not yet known, updates will be posted on the department disposal Web page at <http://www.agr.mt.gov/pestfert/disposal.asp>.

Participants must pre-register their unusable pesticide with the Montana Department of Agriculture so the collection can be managed safely and efficiently. Participants will be asked to bring their unusable pesticides to specific drop off points where they will be collected and disposed of in an environmentally-friendly manner.

Participation in the program is open and available to everyone in Montana.

The registration form can be found on the Web site listed above and must be mailed no later than August 28, 2009 to:

Montana Department of Agriculture  
Pesticide Disposal Program  
P.O. Box 200201  
Helena, MT 59620-0201

The disposal fee is FREE for the first 200 pounds and \$0.50/lb for amounts in excess of 200 pounds. The program will also collect and dispose of most metal pesticide containers. Empty plastic pesticide containers, fertilizers, waste oil, paints and any other non-pesticide material will not be accepted.

For more information, contact Beth Eiring, Montana Department of Agriculture, (406) 444-5400.

# Cooperative Agricultural Pest Surveys in Montana

by Ian A. Foley, Entomologist, Montana Department of Agriculture



EMERALD ASH BORER TRAP. PHOTO BY I. FOLEY, MONTANA DEPT. OF AG.

Montana has participated in the Cooperative Agricultural Pest Survey program or CAPS program since the early 1990s. These surveys have targeted all types of pests including insects, nematodes, plant diseases, and weeds. Any invasive pest threat to Montana agricultural or environmental resources can be targeted by a CAPS survey. The four primary goals of the CAPS program are the early detection of exotic pests, the maintenance of pest information, the support of U.S. export commodities, and the enhancement of the CAPS network and communications. On the ground, these goals are accomplished through cooperation between MSU Extension and various state and federal agencies.

Planned for 2009 are several surveys designed to detect exotic pests before

they become well established in Montana. These surveys target the following pests; exotic moths, emerald ash borer, Japanese beetle, potato cyst nematodes, small grains pests, and exotic biological control agents. In addition to the detection surveys, several surveys are planned to facilitate the exportation of Montana agricultural products to other states and countries, including surveys for exotic nematodes, Karnal bunt (a fungal disease of wheat), and cereal leaf beetle.

New for 2009 is the small grains CAPS survey. This survey targets 14 different pests, including eight insects, two mollusks, three nematodes, and a disease. This survey is what is called a commodity-based survey. Rather than targeting one specific pest, these

# For Bee's Sake, Read the Label Before Spraying for Mountain Pine Beetles

by Toby Day, MSU Extension Agent, Silver Bow County

All pesticides sold in the U.S. are required to have an EPA registration number, and pesticide containers are required to carry a pesticide label. Pesticide labeling is the main means of communication between a pesticide manufacturer and pesticide users. The pesticide label gives you instructions on how to use the product safely and correctly.

Pesticide users are required by law to comply with all the instructions and directions for use in pesticide labeling. It is illegal to use a pesticide in any way not permitted by the labeling. You may not use a pesticide off-site, use improper equipment settings, use the improper rate or spray without the proper safety gear required by the pesticide label.

In addition, a pesticide may be used only on the plants, animals, or sites named in the directions for use. Users may not

apply more frequently or in higher doses or concentration than is permitted by label directions.

In the fight against the mountain pine beetle, many of the carbaryl products that are used to protect pine trees have cautionary statements that may read "this product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds." The cautionary statements may go on to say something like, "For maximum honey bee hazard reduction, apply late evening to early morning or when bees are not foraging."

Areas in which pine trees are sprayed in Montana often have concentrated infestations of knapweed or other flowering plants at their bases during the growing season. When spraying for mountain pine beetle, make sure that there are no bees present. If there are,

adjust times of applications to the early morning or late evening when the bees aren't foraging.

Pesticide educators consistently remind applicators "the label is the law." If pesticides are sprayed "off-label," and there is proof of an environmental hazard caused by off-label spraying, the applicator is usually found negligent.

For questions about pesticide labels, contact your Cooperative Agriculture Extension Service or the Montana Department of Agriculture.

Toby Day is the Butte-Silver Bow Extension Agent specializing in horticulture and 4-H. He can be reached at the Butte-Silver Bow Extension office at 305 W. Mercury #302 in Butte, (406) 723-0217, or [tday@montana.edu](mailto:tday@montana.edu).

surveys target many potential pests of a particularly commodity that is important to Montana, in this case wheat. The small grains CAPS survey requires multiple field visits and sampling methods for the upcoming season. If you have small grain acreages and are interested in participating in this survey, please contact the Department of Agriculture at the phone number below.

Another aspect of the CAPS program is an area or nation-wide survey. These surveys allow multiple states to purchase the same traps and lures, standardize the survey methodology, eliminate geographic gaps in the National Agricultural Pest Survey Database (NAPIS, <http://pest.ceris.purdue.edu/index.php>), and target those pests that

are the greatest risk. In 2009, Montana is participating in a handful of nation-wide surveys, including one for emerald ash borer. The emerald ash borer (EAB) is an exotic wood-boring beetle that attacks ash trees. One look around Montana and it is easy to see that an insect that kills ash trees would be devastating to our urban tree resources. This insect is established in several areas of the Eastern US and can be moved easily in firewood. More information about the emerald ash borer can be found on the Web (<http://www.emeraldashborer.info/index.cfm>).

The New Zealand Wheat Bug, one of the targets of the 2009 small grains CAPS survey in Montana. Image N. Wright, Florida Dept. of Ag. and Conservation Service, [Bugwood.org](http://Bugwood.org)

None of Montana's CAPS surveys would be possible without the dedicated service of student interns that are hired annually by the program. For more information about becoming a pest survey intern or the CAPS program in general, please visit the Department of Agriculture Web site (<http://agr.mt.gov/weedpest/caps/capsIndex.aspcontact>) or contact Ian Foley (406-444-9454, [ifoley@mt.gov](mailto:ifoley@mt.gov)).



# Pesticide News & Programs of Montana Interest

## **Resale of Verbenone Illegal without a Valid Pesticide Dealers License.**

**Published March 13, 2009.** <http://www.pesticides.montana.edu/News/Miscellaneous/agalertverbenone.pdf>. General use pesticides, including verbenone, that have use directions outside of the home, yard, lawn, and/or garden area cannot be distributed, sold or even given away for free, without a valid pesticide dealer's license. See this MSU Pesticide News story for more information regarding the illegal distribution of verbenone.

## **Are we Ready for a 2,4-D Ban.**

**Published January 12, 2009.** <http://www.pesticides.montana.edu/News/Miscellaneous/agalert2,4-D.pdf>. EPA is considering petitions by the Natural Resource Defense Council to ban registrations of 2,4-D. The implications of such an action are widespread and may hit closer to home than we think. 2,4-D is one of the most widely used agricultural herbicides worldwide and is the most common ingredient in home and garden pesticides. This MSU Pesticide News story gives an objective analysis of 2,4-D and the pro's and con's of losing registrations of 2,4-D.

**Beaverhead, Madison, Gallatin, Park, Meagher, Broadwater, Jefferson, Silverbow, Powell, and Granite Counties. October 5 – 9, 2009** Pest Management Tour (6 private applicator credits). The region 2 (southwest Montana) recertification cycle ends January 1, 2010. This may be the last chance for private applicators to obtain 6 credits in region 2. Experts from across Montana will speak about various pesticide education topics. Contact your local Extension office in region 2 or the MSU PEP for more details.

## **Special Registrations on Tribal Land. Published March 27, 2009.**

<http://www.pesticides.montana.edu/News/Miscellaneous/agalerttriballands2.pdf>. State special registrations including the Section 18 and 24c previously were approved throughout the state but did not apply within tribal boundaries. A 'Special Registration Use within Indian Country' pilot program was initiated on November 28, 2008 between the EPA and tribal agencies across the United States. This includes all tribes within Montana. See the MSU Pesticide News story for more information.

## **Additional Permitting for Pesticide Applications on or near Water Likely in Future. Published April 21, 2009.**

<http://www.pesticides.montana.edu/News/Miscellaneous/agalertaquaticpesticidepermits.pdf>. EPA's 2006 Final Rule on Aquatic Pesticides has been revoked. We could expect additional permitting needed for many pesticide applications near, over, or on water in the near future. EPA has filed a motion of stay which may delay this for up to 2 years depending on the 6th Circuit Court's decision. See this MSU Pesticide News article for more details.

**Granite County. June 3.** Granite County Noxious Weed Clinic. (6 private applicator credits). This program includes sessions on water quality and environmental fate, equipment advances, competitive seeding, grazing management for controlling weeds, and calibration. Contact the Granite county Extension office for more details regarding (Dan Lucas; [acxdl@montana.edu](mailto:acxdl@montana.edu), 406-859-3304).



# Comments and/or Questions from the Public

By Cecil I. Tharp (Pesticide Education Specialist, MSU)

**QUESTION.** Three Forks, Mont. I have heard we may have arsenic in our wells within the Madison valley. Can I drink the water?

**ANSWER.** You may find many contaminants in your ground water, but that does not indicate that it is at dangerous levels. Technology has made huge leaps with sensory equipment that can detect much lower levels that may not be a problem. Low levels of arsenic which are below EPA thresholds should not pose any health problems to you or your family. Test your groundwater at a local water analysis service. They will discuss your water evaluation compared to EPA thresholds. If it is over the EPA threshold, it may be possible to purchase a reverse osmosis system or other filtration device, which could lower the arsenic in your drinking water. EPA thresholds on arsenic are expected to drop in the near future according to reports. This could mean many homeowners who previously did not need filtration systems may need to add a system in the future ([www.pesticides.montana.edu/News/Miscellaneous/arsenic values changing.pdf](http://www.pesticides.montana.edu/News/Miscellaneous/arsenic%20values%20changing.pdf)).

**QUESTION.** Missoula, Mont. Do I need to calibrate my boom or backpack sprayer if it worked fine when I put it in the garage last fall?

**ANSWER.** YES! Your sprayer should be calibrated at least every spring prior to your first application. Winter storage may cause nozzle or line damage from small amounts of water freezing in your sprayer. Your entire sprayer should be checked for leaks or damage in the spring prior to a complete calibration. This would include checking each nozzles flow rate prior to assessing the total output (Gallons Per Acre) of your sprayer. With this information you should replace any worn or damaged parts.

**QUESTION.** Glasgow, Mont. I attended a program that was offering 6 recertification credits. I attended half the program but had to leave at noon. Can I get half the credit for my attendance at this program?

**ANSWER.** No. You will need to attend the entire session to receive credits for a program. It is all or nothing. Only attend programs you can participate in

from start to finish. At times, pesticide educators will split a program into a morning and afternoon session (separate credits for each). In that case you could attend either morning or afternoon sessions. Check with your local Extension office or the MSU PEP for more information on your program of interest. To view all private applicator program opportunities see the MSU PEP Web site at <http://www.pesticides.montana.edu/PAT/index.html> by simply selecting your region of interest from the map.

## *Do you have comments or questions regarding pesticides?*

If you do, send to either:

Cecil Tharp  
Pesticide Education Specialist  
P.O. Box 172900  
Montana State University  
Bozeman, MT 59717-2900  
Phone: (406) 994-5067  
Fax: (406) 994-5589  
Email: [ctharp@montana.edu](mailto:ctharp@montana.edu)  
Web: [www.pesticides.montana.edu](http://www.pesticides.montana.edu)

Janet Kirkland  
Certification & Training Officer  
Montana Department of Agriculture  
Agricultural Sciences Division  
PO Box 200201  
Helena, MT 59620-0201  
Phone: (406)-444-5400  
Email: [jakirkland@mt.gov](mailto:jakirkland@mt.gov)  
Web: <http://agr.mt.gov/>



# Montana Pesticide Bulletin

## MSU PESTICIDE SAFETY & EDUCATION PROGRAM

### TRAINING & REFERENCE MATERIALS

#### Personal Information

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 County of Residence: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

Complete PSEP Training Packet	Total Cost = \$11.00	Check box if needed
<b>INITIAL PRIVATE APPLICATOR CERTIFICATION (STUDY MATERIALS)</b> Montana Private Pesticide Certification Handbook EPA How to Comply with the WPS (CD) EPA How to Comply with the WPS (Book) MSU Pesticide Recordkeeping Booklet USDA Recordkeeping Manual for Private App MontGuide: The Montana Private Applicator Program		

Reference Materials	Cost	#	Total
Montana Private Pesticide Certification Handbook	\$7.00		
EPA How to Comply with the WPS (CD)	\$1.00		
EPA How to Comply with the WPS (Book)	\$3.00		
MSU Pesticide Recordkeeping Booklet	\$1.50		
USDA Recordkeeping Manual for Private App	\$1.50		
Montana Pesticide Bulletin	\$1.00		
MontGuide: The Montana Private Applicator Program	\$1.00		
MontGuide: Assessing Pesticide Safety	\$1.00		
MontGuide: Chemicals and Animal Safety	\$1.00		
TIPS for Fighting Weeds on Small Acreages in Montana	\$3.00		
<b>TOTAL COST</b>			

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Please send this form with cash or check payment to:

MSU Pesticide Education Program  
 PO Box 172900  
 Montana State University  
 Bozeman, MT 59717-2900



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