

Pest Alert

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MUSK THISTLE MANAGEMENT

Musk thistle is a biennial and only reproduces from seed. The key to successful musk thistle management is to prevent seed set. Musk thistle plants have resumed growth and currently are in the rosette growth stage. This is a good time to locate infestations and begin treating with herbicides such as Banvel (dicamba), 2,4-D, Tordon 22K (picloram), Transline (clopyralid), and Curtail (clopyralid + 2,4-D). Musk thistle susceptibility to 2,4-D, Banvel, or Tordon decreases as the weed begins to bolt. When infestations are sprayed with one of these herbicides after bolting begins, and particularly when flowering, typically the plant dies but sheds viable seed. Thus, the infestation is perpetuated. Data are mixed as to whether musk thistle sets viable seed when sprayed with clopyralid after the weed is in the bolting growth stage, but Transline or Curtail will consistently control musk thistle when applied during the rosette growth stage.

Cooperative research conducted by Colorado State University and the University of Nebraska indicates that Escort (metsulfuron) will eliminate seed set when musk thistle is sprayed up to the bud growth stage. We found that 0.3 oz ai/A (0.5 oz of product per acre) was very effective. A good agricultural surfactant must be used (0.25% v/v or 1 qt per 100 gallons of spray solution) or good control will not be achieved. We also suspect that late treatment with Escort may be compatible with the musk thistle seed head weevil by separating the herbicide treatment and insect activity in time. That is, allow the first few musk thistle heads to mature and time herbicide application around the later developing lateral heads when they are in the bud growth stage. The seed head weevil will complete its life cycle in the first developing heads and

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destroy seeds. The later herbicide application may not harm the insect because it will complete its life cycle and exit the plant. In this way, a management system combining biological and chemical control can be used.

For additional information refer to Colorado State University Service in Action 3.102, Musk Thistle: Biology and Management. (Beck).

LEAFY SPURGE CONTROL WITH HERBICIDES

Leafy spurge is an opportunistic weed and grows well even under drought conditions because of its deep root system. Most infestations are in the bract to bloom stages. This means that spring herbicide treatments will have to be applied soon. Be sure to check known infestations for growth stage, so as not to miss the critical window of spring application timing for Tordon, Banvel/Vanquish/Clarity, or 2,4-D.

Apply Tordon at 1 qt/A or Tordon + 2,4-D at 1 to 1.5 pt of Tordon plus 1 qt/A of 2,4-D. Banvel/Vanquish/Clarity should be applied at 2 qt/A. Tordon, Tordon + 2,4-D, or Banvel/Vanquish/Clarity should be applied each spring at flowering for 3 consecutive years. Plateau is a new herbicide from American Cyanamid that can be used to control leafy spurge in non-crop areas. Plateau must be split-applied. Make the first application in fall at 8 oz of Plateau per acre and a second application must be made the following spring at 4 oz per acre when leafy spurge is flowering.

The most successful leafy spurge management systems include seeding perennial grasses in fall. Roundup applied 2 to 3 times during the growing season at 1 qt/A followed by fall seeded perennial grasses has been successful. For additional information on leafy spurge management, see Colorado State University SIA 3.107 or call George Beck at (970) 491-7568. (Beck)

ONION VEGNET UPDATE

Spring conditions throughout April and early May have certainly added challenges to the 1999 onion season. Early dry conditions, followed by high winds + wind chill, followed by cold, wet conditions has affected seeded and transplanted field establishment and pest threats. Some seeded fields have been replanted or abandoned in the northeastern part of the state. In addition, reports of maggot damage have prompted applications of Lorsban to many seeded fields.

Early reports of transplant death or at least yellowing of older leaves coupled with scale lesions at the soil-line suggest that Botrytis Soil-Line Disease is beginning to develop in the Front Range area. The fungus will cause stand loss of young plants or cause quality problems in upcoming weeks as surviving plants form bulbs with soil-line lesions that penetrate a few to many scales deep. Botrytis is influenced by initial transplant quality, bruising of outer scales during transplanting, and post-transplanting stress such as the cold, wet conditions during recent days and weeks.

Management options include re-transplanting to fill in stand gaps, and/or use of a directed spray/drench of certain fungicides in 25 - 50 gallons of water. Products such as Rovral or Botran have reasonable activity against Botrytis if the product reaches the infection site at the soil-line interface with the outer plant tissue and protects the plant from infection or reduces the extent of penetration by the fungus. After establishment of the transplants, irrigation practices should minimize the saturation of the plant/soil interface to keep this area as dry as possible without stressing the plant for moisture (Schwartz).

EPA'S FIRST TECHNICAL BRIEFING ON AN ORGANOPHOSPHATE (AZINPHOS-METHYL) REVISED RISK ASSESSMENT

To increase stakeholder involvement in the implementation of the Food Quality Protection Act (FQPA), the Environmental Protection Agency (EPA) sponsored a technical briefing for the organophosphate insecticide azinphos-methyl Wednesday, May 19. The briefing provided an opportunity for the public to learn about the data, information, and methods that EPA used to develop and revise the risk assessment for azinphos-methyl. This is the kick-off to Phase 5 of the pilot public participation process that EPA and the U.S. Department of Agriculture (USDA) are now using. EPA will release the revised risk assessment for public availability and issue a Federal Register notice to provide an opportunity for a 60-day participation period for the public to submit risk management ideas and proposals. If you are interested in participating in the public comment phase, additional information can be found on the EPA web site at: <http://www.epa.gov/pesticides/OP/status.htm>. For more information, contact Barry O' Keefe at (703) 308-8035 or Karen Angulo at (703) 308-8004. (McDonald)

MORE TRAC DOCUMENTS

EPA is soliciting comments on a draft policy paper entitled "Choosing a Percentile of Acute Dietary Exposure as a Threshold of Regulatory Concern." This is the seventh in a series concerning science policy documents related to FQPA developed through the Tolerance Reassessment Advisory Committee (TRAC). They have posted the document on the EPA webpage at <http://www.epa.gov/fedrgstr/EPA/1999/April/Day-07/p8636.htm>. Submit written comments (by mail or electronically) identified by docket control number OPP-00593 by June 7, 1999. For further information contact Kathleen Martin, Environmental Protection Agency (7509C), 401 M St., SW., Washington, D.C. 20460; telephone number: (703) 308-2857, fax: (703) 305-5147; and e-mail address: martin.kathleen@epa.gov. (McDonald)

NEW FOOD CONSUMPTION REPORT

The report "Food Consumption, Prices, and Expenditures, 1970-97" by Judith Jones Putnam and Jane E. Allshouse was recently published by the Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture as Statistical Bulletin No. 965. It is available on the web at <http://www.econ.ag.gov/epubs/pdf/sb965/>. The abstract follows.

This report presents historical data on food consumption, prices, expenditures, and U.S. income and population. In 1997, each American consumed, on average, 81 pounds more of commercially grown vegetables than in 1970; 65 pounds more of grain products; 57 pounds more of fruit; 32 pounds more of caloric sweeteners; 13 pounds more of total red meat, poultry, and fish (boneless, trimmed equivalent); 17 pounds more of cheese; 13 pounds more of added fats and oils; 3 gallons more of beer; 70 fewer eggs; 10 gallons less of coffee; and 7 gallons less of milk. Retail food prices, as measured by the Consumer Price Index (CPI), increased 2.6 percent in 1997. Food price inflation in 1997 was higher than the overall increase in the CPI for all goods and services (2.3 percent) for the third consecutive year. Americans spent \$715 billion for food in 1997 and another \$95 billion for alcoholic beverages. Away-from-home meals and snacks captured 45 percent of the U.S. food dollar in 1997, up from 39 percent in 1980 and 34 percent in 1970. The percentage of disposable personal income spent on food declined from 13.8 percent in 1970 to 10.7 percent in 1997. (McDonald)

REVOCATION OF 29 TOLERANCES PROPOSED

On April 23, 1999, EPA published a proposed rule to revoke 29 specific tolerances for residues of 10 pesticide chemicals: the herbicides -- bentazon, cyanazine, diquat, oxadiazon, picloram, prometryn, and trifluralin; the plant growth regulator ethephon; and the insecticide dicrotophos.

Four of the pesticides are in the first priority group for FQPA tolerance reassessment. In addition, EPA is proposing changes in terminology and definitions for these ten chemicals plus oryzalin (which does not have tolerance revocations proposed) to conform to current EPA practice.

EPA will accept comments on these proposed tolerance revocations and other changes until June 22, 1999. Most of the 29 tolerance revocations are proposed for canceled uses and crops previously dropped from the label. If EPA receives a request to retain a tolerance, they will publish a notice regarding data that must be submitted to demonstrate that the current safety standard is met and when data must be submitted.

The Federal Register notice is available at <http://www.epa.gov/fedrgstr/>.

LABELS AND MSDS VIA THE WEB

The URLs for many of the agrichemical companies are listed below. Updated labels and material safety data sheets (MSDS) can be viewed and downloaded.

Agrichemical Companies	URL for product information (Labels & MSDS)
AgrEvo USA Company	www.agrevo-usa.com/
American Cyanamid	www.cyanamid.com/
BASF Corporation	www.basf.com/search/index.html
Bayer Corporation	usagri.bayer.com/
Dow AgroSciences	www.dowagro.com/
DuPont Agricultural Products	www.dupont.com/ag/us/index.html
Elf Atochem North America, Inc.	www.elf-atochem.com/
FMC Corporation	ag.fmc.com/index2.html
Gowan Company	www.gowanco.com/
Griffin LLC	www.griffinllc.com/
Helena Chemical Company	www.helenachemical.com/
Monsanto Company	www.monsanto.com/ag/_asp/monsanto.asp
Novartis Crop Protection, Inc.	www.cp.novartis.com/
PBI Gordon Corporation	www.pbigordon.com/
Rhone-Poulenc Ag Company	www.rp-ag.com/RPAgCo/Default.asp

Riverdale Chemical Company	www.riverdalecc.com/
Rhom and Hass Company	www.rohmhaas.com/businesses/AgChem/index.html
Terra Industries	www.terraindustries.com/
Uniroyal Chemical	www.uniroyalchemical.com
Valent USE Company	www.valent.com
Wilfarm LLC	www.wilfarm.com/
ZENECA Ag Products	www.zenecaagproducts.com/

Other Sources:

Crop Protection Reference from C&P Press	www.greenbook.net/free.asp
Turf and Ornamental Reference for Plant Protection Products from C&P Press (McDonald)	bluebooktor.com/free_b.asp

NEW EXTENSION FACT SHEETS

Several new entomology fact sheets were produced over the winter and have just become available. These include:

- Brownheaded Ash Sawfly
- Greenhouse Whitefly
- Flea Beetles
- Sunspiders
- Conifer Seed Bugs*
- Cicadas*
- Zimmerman Pine Moth*

(* These sheets are available in electronic version only, on the CD-ROM.)

In addition there is a major revision of the long out-of-print sheet on Horticultural Oils.

All of these and some 2000 other publications are also on the new CD-ROM, *Put Knowledge to Work: Home and Garden*. This just was produced and is available from the Colorado State Cooperative Extension Resource Center (CERC). Cost is \$40 (\$25 for nonprofit organizations). CERC can be contacted at (970) 491-6198 or via email at CERC@vines.colostate.edu (Cranshaw)

NEW INSECTICIDE - CONSERVE SC TURF AND ORNAMENTAL

Conserve SC Turf and Ornamental (spinosad) is an insecticide that has recently received registration. It is the first of a new class of insecticides known as the Naturalyte class. They are derived from a soil actinomycete that produces compounds known as spinosyns as the active ingredients. The current registration allows use on turfgrass and ornamentals (broad sense) including those grown in nurseries and greenhouses as well as landscape ornamentals.

Spinosad has a very favorable toxicology profile in regard to non-target organisms (e.g., birds, mammals, aquatic organisms), carries a Caution label and has a very short 4-hour reentry interval on nursery/greenhouse sites.

I have tested spinosad on several plants. It seems to be quite effective on essentially any caterpillar (Lepidoptera). It is also very effective for flower thrips - and may be the best flower thrips product currently on the market in my opinion. Gall midges (e.g., pinyon spindlegall midge) have been well controlled; honeylocust podgall midge (listed on the label) has not.

Leaf beetles and sawflies are also listed on the label and I have heard anecdotal reports of its effectiveness on these groups.

Although perhaps not quite as "pure" a biological insecticide as *Bacillus thuringiensis* and with slightly more, spinosad does seem to have some nice advantages compared to most alternative insecticides for when environmental concerns are high at the site of application. Unlike Bt, it has some contact activity, is more persistent, and is effective against a considerably wider range of insects.

Spinosad is being developed under the trade names Spintor and Success for other markets, including vegetables and cotton.
(Cranshaw)

THE INFESTED FESTIVAL

On June 6 the Denver Museum of Natural History is presenting *The Infested Festival*, an all day event devoted to insects. A whole host of events are planned. James Wangberg will do a "Bug Du Jour Insect Cooking & Tasting" and review the use of insects in the human diet. An all day film fest will feature such great bug movies as *Joe's Apartment*, *Them*, *Microcosmos*, *Arachnophobia*, and *Mimic*. A Bug Zoo will be in place with periodic Cockroach Racing and for the kids there will be a special "Infestation Station". Various speakers will be present to cover hot topics such as spider facts, biological controls, and native pollinators. And much, much more.

Events run all day long, starting at 10 AM and winding up with the "Things That go Hunt in the Night", a nighttime search of spiders and insects in City Park beginning at 9:00. Cost is \$12/\$16 (member/nonmember) with kids \$8. To register call (303) 322-7009 between 9 to 5 or send payment to DMNH Reservations, 2001 Colorado Blvd, Denver, CO 80205.
(Cranshaw)

HONEYLOCUST PLANT BUG

In both 1998 and, particularly, 1997 honeylocust plant bug was in well above average numbers. Serious damage occurred in some locations, including some extensive dieback. The injury that this insect produces is often not caught until the terminal stage of the infestation. However, by sampling at this time one can catch incipient outbreaks, as eggs appear to have just recently hatched. A review of this insect follows:

HONEYLOCUST PLANT BUG
Diaphnocoris chlorionis (Say)
Hemiptera: Miridae

Host: Honeylocust

Damage and Diagnosis: Nymphs feed on the developing buds and leaves. They use a "lacerate and flush" feeding style that produces a lot of injury to the feeding site. Young leaves and buds often are killed. Older leaves may survive but show discoloration and deformation of developing foliage due to localized necrosis around feeding points. Heavy infestations may greatly retard foliage development in spring and have been associated with twig and branch dieback.

During outbreaks many of the yellow-green nymphs may be dislodged from trees following light shaking of foliage. This can result in nuisance problems when they land and crawl on people.

The honeylocust leafhopper (*Macropsis fumipennis*) typically occurs in co-infestations with honeylocust plant bug and the two species can be easily mistaken for each other. Honeylocust plant bugs are paler colored, have a slightly more blunted abdomen, somewhat giving the appearance of an aphid. The leafhoppers also may walk sideways, crablike, when disturbed a habit not shared by the honeylocust plant bug. Honeylocust leafhopper produces little, if any, significant damage to honeylocust.

Life History and Habits: The overwintered eggs hatch in late April or early May. The nymphs feed on tender, emergent leaves and buds. They feed over a period of about a month with most reaching maturity in about one month. The winged adults are present for two or three weeks during which time they mate and females lay eggs into the woody tissues of twigs. There is one generation per year.

Management: Honeylocust plant bug can be easily sampled by shaking branches over a tray or piece of paper. They somewhat resemble aphids, but lack the cornicles ("tailpipes") on the hind end and can be extremely active. Care must be made to distinguish between the leafhoppers and plant bugs.

During outbreaks significant damage can be done by honeylocust plant bugs and controls can significantly benefit plant growth and appearance. Vigorous hosing with water can dislodge many nymphs and may be sufficient for smaller trees. Several insecticides are effective for control (e.g., Sevin, Diazinon, pyrethroids). However, to get maximum benefit trees should be monitored for emergence of the insects and treated during early stages of the infestation, usually by mid May. Treatments applied during the terminal stages of the infestation, after serious symptoms have developed, will provide little benefit. (Cranshaw)

WHEAT CROP LOOKING GOOD

Last week we joined pathologists and others from Colorado, Nebraska and Wyoming for our spring wheat disease tour in NE Colorado, Nebraska Panhandle and SE Wyoming. For the most part the wheat looks very good. There are many yellow fields but we agreed that is because many growers had cut back on their fertilizer because of low prices. The other factor contributing to the yellowing is the cool wet soil.

In the 2 instances where we found severe wheat streak mosaic (WSMV), one field had been planted early and next to a heavy volunteer field. The other was in wheat that was alternately strip farmed with corn. The strips were fairly narrow, 50-70 feet, so the vector wheat curl mite movement from the corn to the new wheat was quite heavy last fall.

Even though the acreage is down, once the temperatures start to climb we should have an excellent crop if sufficient water remains available. The lack wide spread wheat streak mosaic and other diseases is encouraging. The disease situation is further eased by the low levels of

leaf rust being reported from Kansas, which historically is the source of our leaf rust inoculum. As growing conditions improve some growers that did not get their nitrogen on or cut back may have some yield decrease but this should not have a wide spread impact on the crop as a whole. (Brown)

WATCH FOR SPOTTED WILT VIRUS IN GREENHOUSES

Spotted wilt virus disease of ornamentals and vegetables can be found in occurring in some Colorado greenhouses. Nationally this virus has been a major production problem over the last few years in some areas. There are 2 strains of the virus that are named after the first plant they were found on but both have wide host ranges. Tomato spotted wilt (TSWV) and impatiens necrotic spot (INSV also called TSWV, I strain in the past) go to a wide range of greenhouse plants including astroemeria, begonia, chrysanthemum, cynamon, geranium, gloxinia and impatiens. The two viruses do not go to roses. Many vegetables such as lettuce, tomato and pepper are also affected.

The viruses are carried by species of Thrips. The most common is the western flower Thrips (*Frankliniella occidentalis*). Infection is most common by the Thrips but the virus can easily be transmitted in cuttings during propagation.

Symptoms vary depending on host, environmental conditions and which of the viruses is attacking the plant. There can be necrotic spots, streaking, ring spots, stem purpling and wilting. Diagnosis based on symptoms alone is difficult and a laboratory serological test is the most dependable.

Sanitation in the greenhouse and elimination of the vector are the only means of controlling the viruses. See Cooperative Extension fact sheet no. 2.947, **Greenhouse Plant Viruses** by Laura Pottorff and Steve Newman for more detail. To get plants tested contact the Jefferson County Cooperative Extension Plant Clinic (303) 271-6620. (Brown)

TREE AND SHRUB PROBLEMS

This has been a strange spring with unseasonably cold weather and frequent occurrences of frost. The damage occurring from this cold weather period will haunt gardeners well into the summer months. Numerous trees and shrubs have been damaged.

Some spring flowering shrubs such as lilac will have few if any blooms this year. Many shrubs have had new shoots frozen back with their tiny leaves darkened by frost. Large leaves damaged by frost are curled or otherwise distorted with streaks of water-soaked cells following along the main veins. As these leaves attempt to unfurl later this spring, the frost damage becomes apparent. Trees and shrubs with unusual yellow or bronze foliage are suffering from cold soil.

Root growth is restricted under these conditions with the uptake of nitrogen, iron and other nutrients reduced. Shoot and leaf growth while reduced, will still occur under cold soil conditions but the development of chlorophyll (green pigment) is often delayed. This allows yellow and red pigments to be evident. The soil temperature problem has been increased by excess water. Soil moisture is necessary for the transfer of heat through the soil. Dry soils normally take longer to warm in the spring than do wet soils. Care should be used when watering to avoid the application of water when it is not necessary. This is especially true when irrigating with ditch water. (Curtis E. Swift, Tri-River Area Extension Agent (Horticulture), Grand Junction). (Brown)

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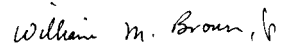
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Sincerely,


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