



PLANT PEST *Newsletter*

MINNESOTA EXTENSION SERVICE

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IN THIS ISSUEPAGE

CORN	1
UPDATE ON GRANULAR INSECTICIDES	1
CORN ROOTWORM	2
BLACK CUTWORM	2
CROP PEST MANAGEMENT BULLETIN BOARD	3
WEEDS	3
WEED IDENTIFICATION	3
WHEAT	3
WINTER INJURY IN HARD RED WINTER WHEAT	3
MISCELLANEOUS	4
GRASSHOPPERS	4
PLANT DISEASE CLINIC	4
BACTERIAL WILT TESTING FOR GERANIUMS	4
DIAL U HIGHLIGHTS	4

CORN**UPDATE ON GRANULAR INSECTICIDES**

The last year has brought several changes in the soil insecticide arena. First, the EPA has announced its intent to cancel the registration of granular formulations of carbofuran (Furadan 15G) based primarily on its avian toxicity. The period for public comment to the EPA has ended. The Scientific Advisory Panel is now reviewing the information and EPA will issue its final decision within the next few months. This ruling will not affect Furadan 15G use during 1989.

ICI Americas announced that Force 1.5G has received registration for use on field, seed and pop corn. Force is

currently labeled only for band application at planting with rates of 8 - 10 oz per 1000 row-ft (0.10 - 0.125 lb AI/acre in 40" rows) to control corn rootworm, black cutworm, seed corn maggot and seed corn beetle control. This rate will suppress white grub and wireworm infestations. Note that a crop rotation restriction applies: the field cannot be rotated to any crop besides corn in 1990. ICI expects to add in-furrow application and remove the crop rotation restriction during 1989. Force (tefluthrin) is a halogenated pyrethroid with excellent soil activity. The product is classified as restricted use because of its toxicity to aquatic organisms and appropriate care should be taken to prevent

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contact Extension Plant Pathology at 612-625-6290**

application or runoff into aquatic habitats. In Minnesota corn rootworm insecticide trials, it has performed well providing consistent root protection (a summary table will be presented in the next newsletter). Because it represents a different class of insecticide chemistry and has not exhibited enhanced degradation in Midwestern tests, Force may be useful for farmers wishing a class to class rotation of insecticides.

CORN ROOTWORM—What's the potential for corn rootworm damage this year? Will I need a soil insecticide on continuous corn? Common questions with a novel twist after last summer's drought. As you might expect, the hot, dry weather also exerted its impacts on corn rootworms. Dry weather generally enhances corn rootworm survival but last year was stressful even on corn rootworms. An annual survey of adult beetles by the Minnesota Dept. of Agric. - Plant Industry Division indicates a mixed impact on corn rootworm populations. In continuous corn, populations appeared to decline in more drought-stressed areas and increase in areas with better rainfall. Compared to 1987, populations declined in WC, C, EC, and SW Minnesota but increased in SC and SE Minnesota.

Hot weather had three effects on beetle populations and egg laying potential. First, emergence was compressed, giving the illusion of more beetles per plant than an equivalent population in a normal summer. Second, the beetles did not survive as long as I'd normally expect, meaning less potential for egg laying. Finally, smaller-than-normal beetle size was commonly observed throughout the state, which translates to reduced egg laying potential from the stressed females. All these indicators suggest a reduced potential for corn rootworm damage in 1989. Unfortunately, it's difficult to translate these factors into a field-by-

field decision. Population levels throughout southern Minnesota, but especially SC and SE Minnesota, are high enough to warrant concern, even considering reductions in egg-laying potential. If fields were not scouted this summer in these areas, soil insecticide use is strongly recommended for corn following corn in 1989.

Another unique feature of this year was the dramatic increase in the proportion of western corn rootworm populations throughout the state. Western corn rootworms increased from 13 percent in 1987 to 26 percent in 1988.

Table 1 summarizes results of the MDA corn rootworm survey.

BLACK CUTWORM—This spring marks the fourth year that a pheromone trap network has been established to monitor migratory flights of the black cutworm (BCW) into Minnesota. Unlike the dingy, red or claybacked cutworms which overwinter in Minnesota, the BCW overwinters in Texas and Mexico. When appropriate weather systems occur in the spring, it migrates northward. Pheromone traps, which release a sex attractant for male BCW, are used to monitor these migratory flights. Ideally, the traps provide up to three weeks' warning of when and where to expect BCW infestations. This year's network involves approximately 115 cooperators in 43 counties.

BCW activity in Minnesota and throughout the Midwest has been slower to develop this spring because of the cooler-than-normal weather and lack of appropriate weather systems. However, the situation is beginning to change. From April 5 to April 11, only 1 moth was caught in 53 traps. In contrast, from April 12 to 19, captures of 4 or 5 moths in a single night were reported from Nobles (Apr.

Table 1. Survey of 1988 corn rootworm adult populations in continuous corn in Minnesota (July 18-29).
Data supplied by Dharma Sreenivasam, Minnesota Department of Agriculture - Plant Industry Division.

No.	CRW adults/plant			Ratio		
	District	Fields	1988	1987	% Change	NCR:WCR
NW	18	0.67	0.29		+231	57:43
WC	40	1.36	2.15		-36	91:9
C	36	1.24	1.70		-24	93:7
EC	12	0.54	1.18		-46	74:26
SW	27	3.17	3.36		-06	81:19
SC	27	4.46	3.97		+12	83:17
SE	27	7.10	4.63		+53	63:37
State Average*		2.97	2.83		+5	87:13

*excludes NW Minnesota

—Kenneth R. Ostlie
Extension Entomologist

16), Jackson (Apr. 18, 19) and Pipestone (Apr. 19). No traps have yet exceeded the threshold of 8 moths in 2 nights. With warm temperatures projected over the weekend, southerly winds, and the first strong frontal system approaching from the Pacific, I wouldn't be surprised to see increased BCW immigration into Minnesota.

—*Kenneth R. Ostlie*
Extension Entomologist

CROP PEST MANAGEMENT BULLETIN BOARD

The Crop Pest Management Program is establishing a bulletin board on the EXTEND computer system that will be open to users outside the Minnesota Extension Service. The bulletin board will contain crop pest newsletters from surrounding states (WI, IL, IA, NE, SD, ND), pest status reports, ag statistics, and weather information. The bulletin board will be piloted this year and should be operational in late May. Access is open to anyone with an IBM or compatible computer and modem. Fees will include a one-time charge for communications software (\$15) plus a yearly connect fee (yet to be determined). If you are interested in participating in this pilot project, please contact Lee at (612) 624-9272.

—*Kenneth R. Ostlie*
Extension Entomologist

WEEDS

WEED IDENTIFICATION—Weed identification should be the first step in an effective weed control program. Accurate weed identification is important for effective and economical control. Local authorities, such as county agents, crop consultants, Vo-Ag teachers, or agricultural inspectors, can help you identify most weed species. However, if there is a weed identification problem that cannot be solved locally, you can mail plant specimens to Bev Durgan, Extension Agronomist-Weed Control, 411 Borlaug Hall, University of Minnesota, St. Paul, MN 55108. I will identify them and give control recommendations as soon as possible. Please observe the following suggestions for preparing your weed samples so that I will have a good specimen to examine.

1. ***Do not*** put weeds into plastic bags or wrap in plastic wrap.
2. ***Do*** put the weeds in a fold of paper towel or fold of newspaper. Press overnight (under a heavy book, etc.), and mail them in the paper. Plants can be folded, if necessary, to accommodate the envelope.
3. Send in an identifiable portion of the weed, usually top growth with flowers and/or fruits, if available. If

sending weed seedlings or young vegetative plants, please send the entire plant, including the roots. Roots are not normally needed for identification of older plants.

4. Provide the following information on the weed to be identified or use the prepared Plant Identification forms available from the Agronomy Extension Office or your local county extension office:

- Type of root system (tap root, fibrous root, rhizomes, etc.).
- Does the plant have milky juice in stem or leaves (yes or no)?
- Habitat of plant (where plant is growing).
- Type of growth habit (erect, prostrate, viny, etc.).
- Write on the outside of the envelope "Plant Identification Sample."
- If you want weed control recommendations, please indicate the area where the weed is to be controlled. For example: roadside, pasture, corn, small grains etc.

—*Beverly R. Durgan*
Extension Agronomist - Weed Control

WHEAT

WINTER INJURY IN HARD RED WINTER WHEAT

WHEAT—In southern and central Minnesota winter wheat should, by now, show signs of growth if not winter injured. Growth is evidenced by new green leaves from the crown and by some new white roots. If the roots are brown and the crown does not have any new green leaves, then the plant is probably dead. Normal plant populations for winter wheat should be 17 to 20 plants per square foot. Winter wheat has the capability of tillering, especially when spring temperatures are cool, thus plant populations as low as 10 plants per square foot will give an adequate yield. If there are less than 10 plants per square foot, it would be advisable to rework the field and replant to another crop such as soybeans. It is not advisable to replant to hard red spring wheat since some winter wheat plants may survive after tillage resulting in a mixed class of wheat at harvest which will be discounted. It is also not advisable to seed hard red spring wheat into areas winterkilled in a winter wheat field since this will also result in a mixed class of wheat. In addition, the maturities differ for spring and winter wheat; thus, they have to be harvested at different dates.

Good weed control is important in winter wheat, especially if the stand is thin. Winter annuals, such as field pennycress (frenchweed) and shephardspurse can especially be a problem in these fields. Winter annuals must be controlled early

in the spring. 2,4-D or Bronate (bromoxynil + MCPA) will give adequate control of these winter annuals. There is some risk of crop injury with 2,4-D. Apply 2,4-D after the crop is tilled. Bronate has good crop safety. Refer to the label for additional use information. See Extension Bulletin AG-BU-3157, "Cultural and Chemical Weed Control in Field Crops" for additional weed control information.

--Ervin Oelke and Beverly Durgan
Extension Agronomists

MISCELLANEOUS

GRASSHOPPERS—I just checked on the status of Sen. Berg's grasshopper bill. As I understand, it has not yet gone to the Senate floor. I don't have any feel as to the probability of its passage if it should get to the floor. However, I believe the Minnesota Department of Agriculture would probably prefer to see it not be passed.

Nothing has occurred to very much reduce the potential for grasshopper problems this year. That is to say that where we had high grasshopper numbers in 1988, where soils have remained dry, and where soaking spring rain has not taken place, grasshopper egg survival will be very high.

Dean McBride, NDSU, has reported egg counts in cropland (soybean?) in eastern ND to be as high as 200 per square yard. If egg survival would be high in such a site there could be economic populations in cropland as well.

At the present time Minnesota has Sevin, malathion (Cythion), Orthene, Penncap-M and diazinon labeled for use on CRP acres. Asana XL is not presently labeled on CRP in Minnesota. However the present choice of insecticides for use on CRP includes safe, effective, relatively inexpensive materials.

I believe it would be wise for agents who had to deal with grasshoppers in 1988 to perhaps plan for some early season survey for the problem in 1989. Should the Berg bill pass we will arrange meetings with the various clusters to discuss the Berg bill fine points. Agents, at this point, will not be called on to make control decisions under the bill.

—Dave Noetzel
Extension Entomologist

PLANT DISEASE CLINIC

BACTERIAL WILT TESTING FOR GERANIUMS

Attention Greenhouse Managers!! As you know bacterial wilt is a serious disease of geraniums and early detection, proper sanitation and thrips control are the keys to control. To assist you in early disease detection, the Plant Disease Clinic is offering ELISA testing for bacterial wilt in geraniums. ELISA means enzyme-linked immunosorbent

assay and it is the state of the art in the diagnosis of bacterial diseases. This ELISA test requires 8 1/2 hours to complete, and test results will be available within 2 working days. The fee is \$20.00 per plant.

When submitting samples to the clinic, please follow these guidelines:

1. Submit whole plants.
2. Provide as much background information as possible, including plant variety and a description of symptoms observed, when symptoms first appeared and their distribution within the greenhouse(s).
3. Deliver samples to clinic by Thursday.
4. Submit payment with each sample. Make checks payable to the University of Minnesota.
5. Deliver samples to:

Plant Disease Clinic
1519 Gortner Avenue
105 Stakman Hall
University of Minnesota
St. Paul, Minnesota 55108

—Jill D. Pokorny, Director
Plant Disease Clinic

DIAL U HIGHLIGHTS

Lawns—Lawn care is still the number one clinic call. Wait to fertilize until grass greens up and is growing actively OR use a combination fertilizer and pre-emergent herbicide about two weeks before crabgrass is expected to sprout. This means early May in the southern part of the state; later, further north. (Hot, exposed south-facing slopes and strips along driveways and sidewalks warm earlier, so should have pre-emergents applied a week or so before the rest of the lawn.)

Birch Leafminer (BLM)—In normal years, BLM does not stress healthy birch and control is usually applied for aesthetic reasons. However, due to last year's drought, BLM feeding will further stress all but the river birch, making them more susceptible to bronze birch borer attack. An application of acephate (Orthene) should be applied to the foliage when the mines first appear as small halo-like discoloration. The computer program Forecaster predicts this event to occur in the Twin Cities May 30, as of March 17.

Black Knot—As homeowners watch for signs of spring in their trees they are noticing hard elongate black galls on their cherries, chokecherries, mayday trees and wild plums. This problem is called black knot and is caused by a fungus. Galls should be removed several inches below the swollen areas before new growth begins in the spring. Homeowners

should also watch for swollen areas to develop on last year's tree growth and this should be removed during dry periods.

Pruning—Wait to prune flowering shrubs until flowers have faded. Wait to prune evergreens until new growth is visible (so you can leave some on the plant rather than prune back too far). Hold off on oaks until July and elms until frost next fall. Refrain from pruning anything but dead branches off small, young trees or drought-stressed trees. They need all the food their leaves can produce.

Hackberry Psyllids are being found in and around homes. They are often described as small, gnat-like insects. They're emerging from overwintering sites in the same manner as boxelder bugs are. They do not reproduce

indoors or live long there. Physical removal is the only control necessary at this time.

"Dog Blight"--The subject of dog blight comes up each spring...dead spots in the lawn, and burned out portions of shrubbery where males have urinated repeatedly. In the case of grass, soak it thoroughly to dilute what is essentially a fertilizer burn, before replanting. It's not so easy with shrubs. You may need to replace, then fence off shrubbery the dog seems to favor particularly.

Other common calls include--oak wilt, Dutch elm disease, fire blight, rhizosphaera needlecast, boxelder bugs and carpenter ants.

*Deborah Brown
Horticulture*

*Jeffrey Hahn
Entomology*

*Cynthia Ash
Plant Pathology*

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