



PLANT PEST Newsletter

MINNESOTA EXTENSION SERVICE DOCUMENTS UNIVERSITY OF MINNESOTA

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For more information regarding the Plant Pest Newsletter
contact Extension Plant Pathology at 612-625-6290

ALFALFA

ALFALFA WEEVIL—Most of the 20 locations reached or exceeded the 300 degree day level (for peak larval hatch) this past week (see table below). However, very few larvae have been observed across the state. As of May 16, Minnesota Dept. of Agriculture has found only 1-2 larvae/100 sweeps in southeastern Minnesota. Adult counts continue to remain low (0-10/ sweeps) as well.

Eggs collected at Rosemount on Friday, May 2, began hatching under constant temperature conditions from 54 and 71° F this past Tuesday (May 15). Based on degree-days

already accumulated in the field and the laboratory, the total Accumulation for these eggs is 335 DDs, 35 DDs longer than the 300 DD estimate from previous research in the upper midwestern states. Although 35 DDs may only represent a 2-3 day error between observed and expected hatch dates, the results suggest further validation and or modification of the DD model forecast is needed. A reasonable "window" of hatching activity can be expected between 300 and 400 DDs. If no significant weevil larvae are detected in your area of the state during this time period, the alfalfa weevil season is probably over. For fields that incurred heavy weevil damage in 1989, but do not show significant weevil numbers this year, it is likely that there was significant mortality of adults this past winter—precluding significant egg-lay this spring.

ALFALFA WEEVIL DEGREE DAYS (as of May 13, 1990)

<u>West</u>		<u>Central</u>		<u>S. Central</u>		<u>S. East</u>	
Alexandria	- 265	St. Cloud	- 280	Faribault	- 302*	Rosemount	- 362*
Morris	- 305*	Becker	- 312*	Mankato	- 383*	Redwing	- 378*
Montevideo	- 324*	Hutchinson	- 300*	Waseca	- 326*	Rochester	- 283
Willmar	- 288	Cambridge	- 284	Winnebago	- 310*	Winona	- 368*
Olivia	- 330*	St. Paul	- 375*			LaCrosse	- 381*

*Locations at or near peak hatch of first-instar larvae.

This weeks update on the forecast for peak AW larval infestations are shown below. These estimates are based on current temperature data up to May 13, plus 30-year historical files for each location.

FORECAST FOR PEAK ALFALFA WEEVIL Larval Infestations (509 DD > 48 F)

LaCrosse	-	May 23
Winona	-	May 25
St. Paul	-	May 26
Rosemount	-	May 27
Faribault	-	May 31
Waseca	-	May 30
Rochester	-	June 2
St. Cloud	-	June 4

CLOVER LEAF WEEVIL—I have not found any CLW nor have I received any calls this past week regarding CLW. Hopefully, the spring rains will facilitate development of naturally occurring fungal diseases and keep this weevil under control.

—Bill Hutchison, Extension Entomologist

POTATO LEAFHOPPER—Despite weather systems conducive to northern migration we do not yet have confirmed reports of PLH in the state (as of May 17).

—Bill Hutchison, Extension Entomologist

WET WEATHER: Yes we need the water and it is good for us to have the rain fall and soak in. Also remember that many disease problems are associated with cool and moist conditions.

Watch for leafspots: Spring Black Stem, Common Leaf Spot and Lepto Leaf Spot. These leaf diseases are always present to some extent but in years like this, they are favored and can develop rapidly when cool temperatures and extended periods of leaf wetness occur. Control is timely cutting. Remember as the canopy increases in volume from late bud through early bloom, the conditions for rapid expansion of these leaf diseases increases also. Leaf loss from leaf spots always present at low levels expands quickly in dense, thick stands to knock off lower leaves.

SBS —Dark brown to black spots on leaf. Spots may merge killing large areas. Leaf yellows and drops.

CLS —Mall circular brown to black spots with an irregular margin. Leaf yellows and drops.

LLS —First on younger leaves. Small black spot and then enlarges to round eyespots—brown or tan center with darker brown border and yellow halo. Dead leaf and petiole remain attached.

—Ward C. Stienstra
Extension Plant Pathologist

CORN

Generally a survivor due to seedling vigor and seed treatment. Plants attacked by several fungi may be weaker and slower to establish. If no nodal roots develop serious stunting can result.

Usually these plants will develop nodal roots.

—Ward C. Stienstra
Extension Plant Pathologist

BLACK CUTWORM

BLACK CUTWORM UPDATE—Cutworm larvae, ranging from 1/2" to 1", have been received from several sites in southern Minnesota. All specimens sent in for ID have been identified as dingy or darksided cutworms. Both species overwinter as larvae or eggs and are ready to attack crops earlier than the migratory black cutworm. Dingy and darksided cutworms are primarily foliar feeders, although cutting can occur.

Although farmers may be concerned about leaf feeding, I do not recommend treatment based on leaf feeding. Leaf feeding itself does not result in yield loss. It only indicates the presence of cutworms and the need for closer monitoring. Treatment is recommended only if cutting begins. Treating when only leaf feeding is apparent risks unnecessary insecticide cost and additional insecticide in the environment. Thresholds for various crops (assuming initial stand at recommended populations levels) are as follows:

Corn	3 to 6% plants cut
Soybean	20% stand loss
Small Grain	More than 5 larvae per square foot
Alfalfa	More than 5 larvae per square foot
Sunflower	25% stand loss

Wet weather will accentuate performance of insecticides so lower labeled rates should be effective.

Black cutworms continue to migrate into Minnesota with these sloshy frontal systems. Flights have been almost continuous into some part of the state from May 8. Cutting date projections are as follows:

April 27-29 flight	June 1 to 9
May 8-10 flight	June 5 to 14

Detailed maps of significant flights and projected cutting dates will be available at county extension offices. Eggs from the April flights should be hatching.

—Ken Ostlie
Extension Entomologist

TANK MIXING HERBICIDES AND CUTWORM INSECTICIDES—The presence of dingy and darksided cutworm infestations and the prospects for later black cutworm infesta-

tions has prompted questions about tank mixing postemergent herbicides and insecticides. Tank mixing can save time and money by eliminating trips, but when is it appropriate?

The two most important considerations are: 1) whether or not cutworm control is needed; and 2) how the timing of cutworm and weed control compare. The previous article discussed thresholds for cutworm control.

While leaf feeding alone is not a reliable criteria for insecticide use, the low cost of treatment (\$4-5/acre) makes it difficult not to take an "insurance" approach. The timing issue is critical to the decision whether or not to tank mix. Obviously you don't want to wait with timely weed control to see if a cutworm problem develops. Delays mean decreased chance of weed control and increased chance of crop injury. The bottom line: Time your herbicide application to weed and crop stages and tank mix with a cutworm insecticide only if its to your benefit. Postemergence grass herbicides should be applied before grasses reach the 3-leaf stage and broadleaf herbicides applied before the 3 to 4 inch stage. Even if cutting has not reached threshold levels, it may be to your advantage to tank mix if leaf feeding and small larvae are common.

Cutworm insecticide labels indicate possible tank mixes with herbicides. However, few herbicide labels indicate insecticide tank mixes. **Table 1** (page 32) summarizes labeled tank mixes. Always follow label instructions for both the herbicide and insecticide. When in doubt, contact a technical representative for the companies' interpretation of the label.

Herbicide-insecticide compatibility is a major concern when tank mixing. The labeled mixtures in **Table 1** should be compatible. However, some 2,4-D mixtures may cause compatibility problems. In this case, add the insecticide first, then the 2,4-D.

See the appropriate herbicide and insecticide label for mixing instructions. Keep all insecticide-herbicide mixtures agitated and do not let mixtures stand overnight. Compatibility questions can be resolved with a jar test.

Another major concern with herbicide-insecticide tank mixtures is enhanced potential for crop injury. Little, if any, University of Minnesota information exists on injury from herbicide-insecticide mixtures. However, products like Bladex, Banvel, Buctril and 2,4-D are more injurious to corn when oil-based additives are tank mixed with them. Insecticides formulated with oils may enhance crop injury potential.

BLACK CUTWORMS/Continued

TABLE 1
Labeled Tank Mixes of Postemergence Herbicides
and Cutworm Insecticides
 (Derived primarily from insecticide labels)

Postemergence Herbicides	Cutworm Insecticide			
	Ambush	Asana	Pounce	Lorsban
Atrazine 80WP, 4L X		X	X	X
Banvel 4EC	X	X	X	-
Basagran	-	-	-	-
Bladex 80WP	X	X	X	X
Buctril	-	-	X	X
2,4 - D	X	X	X	-

X = Labeled — = Not labeled

One option for reducing costs of both herbicides and insecticides is to apply in a 10-14" band and follow later with cultivation. Since band applications are not specified on insecticide labels, check with your dealer about company stance on band vs broadcast applications. Research at Iowa State University has shown that band applications can be just as effective on cutworms as broadcast applications.

—Jeff Gunsolus, *Extension Agronomist* &
 Ken Ostlie, *Extension Entomologist*

GRASSHOPPERS

GRASSHOPPER HATCH—Rick Gilbertson, a crop consultant in the St. Cloud area, reported fairly large numbers of 1st stage grasshoppers in his working area. I would guess them to be two-striped hoppers as it is pretty early for the redlegged.

The cool weather the past week has pretty well stopped the hatch. However, the first warm days should provide an abundance of nymphs over most of the state.

INSECTICIDE SELECTION—We met with the Dept. of Agriculture, Dept. of Natural Resources, a representative from the Attorney General's office and representatives from the Department of the Interior regarding the designation of insecticides for grasshopper control.

The group consensus was to stress the use of malathion, Sevin and Asana XL wherever and whenever possible. If Asana XL becomes available for use on CRP and small grain it would be a high choice there as well. It was quite clear that many, perhaps a good majority, of the group would prefer minimal use of products with high wildlife toxicities. You all have tables of the toxicities available and should actively use them.

GRASSHOPPER LAW—Governor Perpich signed the amendments to the 1989 law. They remain unchanged from the copy of the law that all agents received. The only mechanical change is that the apiary locations sent to counties

are based on 1989 registrations without a 1990 update and not all beekeepers were registered. Updates of apiary locations will be sent to each county agent for their own county. My thinking, however, is that updating will be very difficult once the season is fully underway.

OTHER LEGAL SUGGESTIONS—All persons applying insecticides for hire must have a current and valid commercial applicator license with the D category for insecticides and fungicides. Following are the grasshopper products which require field posting and their reentry intervals. Products legal on roadsides do not require posting. Corners of fields adjacent to roads or human activity and field entries must be posted.

Grasshopper insecticides with following reentry intervals

Insecticide	Reentry interval in days
Cygon 4E	2
Furadan 4F	2
Lorsban 4E	2
Methyl parathion 2, 4, 6E	2
Ethyl parathion 8E and 8 Aqua	3 (small grain) 6 (corn)

—Dave Noetzel
Extension Entomologist

SOYBEANS

Watch for loss of stand. Check fields for emergence and count plants/ft. Consider replant decision carefully. Cool wet soils, average or poor quality seed and seed treatments are very important this year. Seedling diseases in cool wet soils include: Pythium, Phytophthora, Fusarium and Rhizoctonia.

Soybeans may be killed in the ground or make it up only to develop very slowly. Stems recently invaded are translucent then brown and water soaked later the tissue dries and darkens. Surface of large roots may peel off. Cotyledons develop small black dry lesions and the growing point is stunted. Hypocotyls may swell (2X normal diameter) and yet be free of lesions or discoloration. Pythium root rot can occur from germination to 3rd trifoliolate but primarily is a seedling disease.

Seed rot and preemergence death is often credited to flooding, yet Phytophthora kills plant at this time also. Loss of stand due to Phytophthora is greatest when Phytophthora susceptible varieties are planted. **Seed treatment**—Apron or soil treatment Ridomil control this stage of Phytophthora well.

Fusarium also can damage seedlings in cool wet weather. If seedling emergence is slow and seedlings are stunted and weak, check root cortex and lower stem. Lower taproot is destroyed.

Rhizoctonia can kill young seedlings and older plants. Soybean tissue is killed and decayed rapidly. Survivors usually have a reddish brown cortical decay near the soil line. These plants are weakened and may break off or die mid-season.

—Ward C. Stienstra
Extension Plant Pathologist

VEGETABLES

ASTER LEAFHOPPER—Very High counts of ALH were documented this week by Marty Lovrien in southern Minnesota. Counts in carrots, near Hollandale, averaged 20 to 40/100 sweeps. Our most recent estimate of the percentage of adults currently carrying (vectoring) the aster-yellows disease is only 0.24% (adults collected mid-April near Fayetteville, Arkansas).

ALH is presently attracted to the barley planted as a cover crop on muck soils. Carrots, now 2" tall, can become infected with the yellows, die and provide a source of inoculum for subsequent spread of the disease. Most fields can tolerate some seedling death and thinning of the stand. Direct damage to the carrot root is not a concern until root development begins.

—Bill Hutchison
Extension Entomologist

MISCELLANEOUS

CORRECTION: CUTWORM CONTROL RECOMMENDATIONS—Oops! After a couple callers expressed amazement at the rapidly growing label for Ambush, we discovered typographical errors in last week's article on cutworm control options. **AMBUSH IS NOT LABELED ON SMALL GRAIN, SUNFLOWER OR SUGARBEETS.** As a reminder, always check the label before using any pesticide.

—Ken Ostlie
Extension Entomologist

BEACON RECEIVES FEDERAL LABEL—The EPA granted CIBA-GEIGY Corporation a full federal label registration on May 11, 1990. Beacon is labeled for postemergence use in corn at a rate of 0.76 oz/A and must be tank mixed with either 2 pints of non-ionic surfactant per 100 gallons of spray mix or 1 to 4 pints per acre of oil concentrate.

Beacon has excellent herbicidal activity on weedy-sorghum species. In Minnesota the primary sorghum weed species is sorghum-almum. Beacon is also very effective on shattercane (*Sorghum bicolor*). University of Minnesota research has also shown Beacon to be effective on quackgrass and the following broadleaf weeds: cocklebur, common and giant ragweed, Eastern black nightshade, Pennsylvania smartweed, pigweed, and wild mustard. The label lists all of these broadleaf weeds (except wild mustard) and a few others, as well as their heights for optimum control. **Beacon is not effective** in controlling any of the foxtail species, wild proso millet, or woolly cupgrass.

Crop tolerance to Beacon can be quite good. However, there are some *very important restrictions* that must be followed in order to *prevent crop injury*. Beacon must be applied to corn when the free-standing height is between 4 and 20 inches. Beacon should not be applied if the insecticide Counter is applied to the crop at *any time during the growing*

MISCELLANEOUS/Continued

season. If insecticides other than Counter are applied at the time of corn seeding, wait at least 20 days after planting to apply Beacon. Also, do not apply any foliar applications of an organophosphate insecticide within 10 days before or after a Beacon application.

The crop injury associated with the interaction of Beacon and corn insecticides is an area that is still being researched. Counter has been linked to a majority of the Beacon injury problems but under certain environmental conditions and possibly on certain soil types, other insecticides may be linked to the crop injury from Beacon as well. Research is being conducted at the University of Minnesota and at other public and private institutions throughout the U.S.A. to better define this problem.

Corn hybrid selection can also influence Beacon's crop injury potential. CIBA-GEIGY has identified most of the corn hybrids that may be susceptible to injury from Beacon. The Beacon label will be tailored for each state and will list only the hybrids which are marketed in that state.

Tank mixtures can also influence Beacon's injury potential and effectiveness. Beacon can be tank mixed with 2,4-D, Banvel, or Buctril. See the label for times of application and additives. Tank mixtures with insecticides, fungicides, or other herbicides not approved on the label could result in serious crop injury.

Labeled crop rotation restrictions following the application of Beacon are as follows: winter wheat-3 months, alfalfa, corn, dry beans, sorghum, soybeans, and spring-seeded small grains-8 months, all other crops (eg. sugarbeets)-18 months.

At this time, it is uncertain how much, if any, Beacon will be available for sale in Minnesota. Beacon supplies will be short nationwide but CIBA-GEIGY is targeting the areas of the U.S.A. infested with sorghum weed species. Therefore, Southeastern Minnesota would be the area most likely to receive the product in Minnesota.

—Jeffrey L. Gunsolus
Extension Agronomist - Weed Control

MINNESOTA WEED TOURS—June 28 is the date for the Southern MN Tour. The tour will begin at 9:00 a.m., at the Southern Experiment Station, Waseca. There will also be a special bus tour of the wild proso millet and woolly cupgrass research plots starting at 1:00 p.m. The joint, MN-North Dakota Weed Tour will begin at 8:30 a.m., July 10 at the Agronomy Seed Farm at Casselton, ND. The tour will continue on July 11 at 9:00 a.m. at the Northwest Experiment Station, Crookston, MN.

MINNESOTA FIELD DAYS—The location and dates for the Branch Research Station summer field days are as follows:

Waseca	June 26	Crookston	July 18
Lamberton...	June 27	Grand Rapids....	July 19
Morris.....	July 12		

—Jeffrey L. Gunsolus
Extension Agronomist-Weed Control

COCKLEBUR IN FEED—I have received several samples of cocklebur seeds that were found in cotton seed meal. The seeds do not look like cocklebur because all the spines have been removed during the meal processing.

After identification the question then becomes—Will these seeds pass through an animal (cattle), survive the manure and become a weed problem? The answer is—There is a potential. Therefore, if possible, we suggest that this manure not be applied to fields that do not have cocklebur. Or if the manure is applied, watch these fields for cocklebur infestations. However, there is some good news about this cocklebur. This seed is coming from southern United States, therefore this cocklebur will probably not flower this far north. So we do not need to worry about seed production from these plants.

—Beverly R. Durgan
Jeffrey L. Gunsolus
Extension Agronomists—Weed Control

PLANT DISEASE CLINIC

SOYBEAN CYST NEMATODE (SCN)/HETERODERA GLYCINES—A total of 32 soil assays have been processed. Six soil assays were negative for SCN and 24 soil assays were positive for SCN. Positive soil samples were submitted from Blue Earth, Dodge, Faribault and Watonwan counties. No new county locations have been observed to date.

Sample collection guidelines are available from the Plant Disease Clinic at (612) 625-1275.

—Jill D. Pokorny, Director
Plant Disease Clinic

TOMATO SPOTTED WILT VIRUS (TSWV)—A total of 10 TSWV assays have been processed. Four geranium, 2 impatiens, 1 gloxinia and 1 begonia sample tested positive. One pansy and 1 gloxinia sample tested negative.

—Jill D. Pokorny, Director
Plant Disease Clinic

County Agents: Please Alert Master Gardeners of the Following Items

Honeysuckle witches' broom aphids (HWBA)—People have been calling about bushy growths and otherwise sick looking honeysuckles. This is a result of HWBA feeding. Although this aphid contributes to the honeysuckle's eventual death, insecticides can prolong the shrub's life. The honeysuckle's appearance can be protected by making five treatments with acephate (Orthene), applied once every 3 weeks, starting the end of May. The honeysuckle's health, but not necessarily its appearance, can be maintained by making three treatments, starting the first of June at one month intervals. If insecticides are not practical, it may be best to replace infested honeysuckles with a resistant variety or a different plant species.

Northern root knot nematode has been found on perennials shipped into Minnesota from out-of-state nurseries. Stunting, chlorosis, and overall poor vigor are the above ground symptoms. Examination of the roots reveals swollen areas (knots) an eighth of an inch in diameter and larger. Infected plants should be destroyed. Northern root knot nematodes will overwinter in Minnesota and have a broad host range. Examine all new plants carefully before planting.

Winter injury—Up until now we've had lots of reports of arborvitae and other evergreens that turned brown on their south or west side. This week, we're also hearing from people whose trees, primarily maples, seem fine part way up, but the top 1/4 to 1/2 appears dead. Many of these calls are about trees in the Norway maple group: red-leafed maples, schwedler maples and harlequin (white margins on green leaves) maples.

None of these Norway maples are native this far north, but usually they grow quite well here. If a reasonable portion of a damaged tree looks healthy, have the upper part pruned off. If this would leave the tree too distorted to be attractive in the landscape, there's no choice but to remove the entire tree.

We are also beginning to receive reports of trees that aren't leafing out well, and trees that leaf out, but then die back from the tips. Chances are, we'll be seeing more of this as weather warms up and it's harder for injured roots to supply the moisture demanded by the leaves.

On a more positive note, we're just starting to hear from people who have spotted morel mushrooms....some of them, in their own yards. The frequent, gentle rains have created decent mushroom conditions around the Twin Cities for the first time in the past few years.

Lilac blight—Symptoms resembling fireblight—sudden blackening and death of succulent leaf and stem tissues, often occurring on just one side or in scattered spots—occurred on lilacs during cool wet weather. Destroy infected shoots by pruning with sterilized shears. Pruning shears can be sterilized by dipping in a 10% bleach solution (nine parts water to one part bleach).

Sowbugs and millipedes—The recent rains have encouraged these arthropods to enter homes. It is usually too dry indoors, and they soon die. Seal or repair obvious entry points around buildings to help exclude pests. Remove leaves, stones, wood chips, plastic and other objects near homes that may provide shelter and easy access. Physically remove pests that are found indoors. This is a temporary problem that should go away on its own with warmer, drier weather. See AG-FS-1023, *Millipedes, Sowbugs and Centipedes*.

Birch leafminer mines were spotted in the Twin Cities on May 14. There are still many eggs unhatched. Given the cool weather conditions, there is still time in the Twin Cities up until early this week (week of May 20) to treat for birch leafminers. There will be less time to treat the further south you are from the Twin Cities and more time going north.

Pine needle scale eggs hatched in the Twin Cities on May 16. This is the best time for control as the vulnerable crawlers are present. If control is desired, acephate (Orthene) is effective.

Other common calls include carpenter ants, bronze birch borers, centipedes, patch disease, oak wilt, all aspects of lawn care, where to buy various blooming shrubs (it's been a great spring for flowering woody plants), pruning trees and shrubs, and environmental damage to balsam fir and deciduous fruit and shade trees.

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