



PLANT PEST Newsletter

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA

PPST11 **June 23, 1989**

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**For more information regarding the Plant Pest Newsletter
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ALFALFA

REGROWTH PROBLEMS CONTINUE—Reports of inadequate regrowth 10-14 days after the first cutting *continue* to come in along with a variety of insect pests that are most likely responsible. In addition to insect pressure, the impact of last year's drought is also probably contributing to alfalfa stress and lack of regrowth recovery.

ALFALFA WEEVIL (AW)—For most southern county locations, damage due to AW has already been done and insecticide treatment at this time is *not* advised. Most of the larvae have stopped feeding and have now pupated (look for 1/4", white-mesh balls near the crown and litter). Given the forecasted (warmer) temperatures for next week, AW adults should be emerging from these pupae in 6-10 days. Upon emergence, the adults will feed for about 2 weeks before leaving the alfalfa and going into summer diapause (aestivation). Hopefully, with adequate moisture and reduced AW pressure, the regrowth in these fields will recover and be able to tolerate subsequent adult feeding. **HOWEVER**, I once again suggest that for those fields sustaining heavy feeding damage prior to, and following cutting, that were not treated, monitoring should continue for subsequent adult feeding. We can **HOPE** for significant natural mortality (predation and parasitism) of the AW pupae but with some fields currently harboring 6-8 pupae/sq. foot, we can also anticipate significant adult feeding in fields still in the early regrowth phase. Again, I do not expect adult feeding to begin for another 6-10 days. When and if you do suspect adult feeding, control options are as follows:

- as with larvae, treatment is warranted if 40-50% of the new regrowth stems show *obvious* signs of feeding damage.
- all of the currently recommended materials for AW larvae should also work well on AW adults except malathion (Cythion).

PLANT BUGS—I have also received some calls regarding the impact of these pests on regrowth alfalfa. Usually plant bugs (Alfalfa and Tarnished Plant Bugs) do not become a serious problem until late in the 2nd crop or during the 3rd crop. Plant

bugs have piercing-sucking mouth parts and suck the plant juices from the leaves (and later, flower buds) leaving a distorted somewhat crumpled leaf appearance and stunted growth. Minnesota Dept. of Agriculture has reported high plant bug numbers in Pipestone and Isanti counties.

- **Management**—Treat if plant bugs average or exceed 3 per pendulum sweep when alfalfa is less than 6". No benefit will be gained from treating less than 10 days before harvest. See table below for insecticide recommendations.

CUTWORMS/ARMYWORMS—I have had one call from Carver County indicating that several regrowth problems may be due to this worm complex. Thus far, all larvae sent in have been identified as Army Cutworm *Euxoa auxiliaris* (Grote). This pest usually prefers small grains, but is also known to attack alfalfa. When full grown the larvae reach 1 1/4" in length and at this size are quite voracious. Larvae are dark grayish-brown with a pale-cream colored dorsal stripe (on top) and light green underneath.

- **Management**—If you find more than 5/sq. ft. or one larva/crown, treat with one of the suggested insecticides.

GRASSHOPPERS—Several species have been reported in alfalfa. If regrowth is not greening up properly grasshoppers reflect yet another possibility. Minnesota Dept. of Agriculture surveys recently indicate more than 8/sq. yd. in Stearns, Traverse, Washington and Wilkin counties.

- **Management**—Control when there are 8 or more/sq. yd. or treat field margins if more than 20/sq. yd. See table for insecticide recommendations.

A final note regarding the alfalfa insect pest complex at this time, when lack of regrowth is obvious. If **two or more** of the above mentioned pests are present at 1/2 their respective treatment thresholds but no single-pest threshold has been exceeded, I would strongly suggest treating with one of the following materials that has activity on the pest complex present.

INSECTICIDE SUGGESTIONS FOR SELECTED ALFALFA INSECT PESTS

Material	Product/ac	lb AI/ac	PHI*
PLANT BUGS			
Lorsban 4E	1 pt.	1/2	14
Cygon (dimethoate) 4E	1/2 - 1 pt	1/4-1/2	10
Rebelate (") 2.67E	3/4 - 1 1/2	"	"
Double M 2E + 2E	3 pt	3/4 + 3/4	7
PennCap-M	2 - 3 pt	1/2 - 3/4	15
Ambush 2E	6.4 - 12.8	0.1 - 0.2	14
	fl oz.	if > 0.1 16 AI/ac	
Pounce 3.2E	4 - 8 fl oz	"	"
Dylox 80SP	20 oz	1	0

INSECTICIDE SUGGESTIONS FOR SELECTED ALFALFA INSECT PESTS/*Continued*

Material	Product/ac	lb Al/ac	PHI*
ARMYWORM/CUTWORMS			
Sevin XLR Plus	3 pt	1 1/2	3
Lorsban 4E	1 pt	1/2	14
Malathion 5E	2 pt	1 1/4	0
Lannate 90% SP	3/8 lb	1/4 - 1/2	7 days till feeding
Nudrin 1.8E	1-2 pt	"	"
Penncap-M 2F	2-4 pt	1/2 - 1	15
Ambush 2E	3.2-12.8 fl oz	0.05 - 0.2 lb Al/ac	14 if >0.1
Pounce 2E	2 - 8 fl oz	"	"
Dylox, Proxol 80SP	1 1/4 lb	1	0
GRASSHOPPERS			
Guthion 50% WP only	1-1 1/2 lb	1/2-3/4	21
Sevin XLR plus	2-3 pt	1-1 1/2	3
Furadan 4F	1/4-1/2 pt	1/8-1/4	7
Lorsban 4E	1/2-1 pt	1/4-1/2	7
Diazinon 4E	1 pt	1/2	7
Cygon (dimethoate) 4E	1/2-1 pt	1/4-1/2	10
Rebelate (") 2.67E	3/4-1 1/2 pt	"	"
Malathion 5E	1 1/2-2 pt	1-1 1/4	0
Penncap-M 2F	2-3 pt	1/2-3/4	15

*PHI = preharvest interval; read label for other limitations and re-entry times.

—Bill Hutchison
Extension Entomologist

CORN

NEW PUBLICATION AVAILABLE ON EUROPEAN CORN BORER DEVELOPMENT AND MANAGEMENT—

A new North Central Regional Extension publication on the development and management of the European corn borer is now available. The newly revised, four-color, 32-page publication summarizes the research of entomologists in 20 midwestern and eastern states. The publication summarizes basic information about European corn borer life cycle, its identification, and damage to corn. Each component of management is thoroughly discussed, including scouting techniques, economic thresholds, timing insecticide applications, application equipment, resistant varieties, cultural practices, biological controls, and weather. A special section summarizes key management tactics for one and two generation regions such as Minnesota.

If you deal with European corn borer in crops other than field corn, take heart. European corn borer problems and their management in sweet corn, popcorn, peppers, snap beans, and potato are also covered.

Farmers, farm managers, and anybody who advises them in corn production (county extension agents, chemical dealers,

agronomists, consultants) will find this publication invaluable. To receive a copy of *European Corn Borer Development and Management* (NCR 327), request bulletin AG-BU-2322 from the Distribution Center, 3 Coffey Hall, University of Minnesota, St. Paul, MN 55108 or call (612) 625-8173. The cost is \$3.00 retail.

EUROPEAN CORN BORER—As hot weather visited us for the first time this summer, adult captures in light traps again increased. Because flight activity is affected by temperature and wind, cold nightly temperatures last week and wind during the middle of this week reduced flight activity. At the moment, counts appear below normal in light traps.

Observation of fields around the state this week indicate taller fields are now capable of supporting larvae. When corn is small (<16 inches extended leaf height), a chemical in most corn varieties called DIMBOA causes larvae to wander about without feeding and die. As corn grows, concentrations of this chemical decline and the corn becomes more suitable for larval

CORN/Continued

establishment. Survival increases substantially when corn reaches mid to late whorl (22 to 36 inch extended leaf height). Scout taller corn fields at 3 to 5 day intervals during the next three weeks for shotholing. As shotholing nears 50% dryland or 35% irrigated, examine infested whorls to determine larval

survival. Poor establishment conditions such as extreme heat or high DIMBOA levels can dramatically reduce survival so its extremely important to evaluate establishment success.

—Ken Ostlie
Extension Entomologist

GRASSHOPPER UPDATE

Two-striped grasshoppers nymphs collected at Crookston show the following age distribution:

Instar	Percent
1	3
2	22
3	41
4	13
5	21

The sample was taken in a barley field with approximately 1985 nymphs per sq yard. It is highly likely that there will be adult two-striped grasshoppers by this weekend or the week of the 26th of June. Dispersal will be increased enormously at that time.

Most CRP will not be cut for hay this year. However high grasshopper populations will strip the plants in most locations. We observed huge numbers of nymphs (3rd through 5th instar) crossing roads this week.

ASANA XL LABEL—The Sec. 18 label for Asana XL has a June 25 termination date. We will make a strong effort to retain the label past that date. Our grasshopper control trials this week tell us that you do not need to go above the lowest labeled dosages with this product for grasshopper control. Use .0125 lb AI/acre (2.9 fl oz) in non-cropland and 0.015 lb/AI acre (2.4 fl oz) on small grain and CRP.

I made an error in the past newsletter implying that Asana XL could be used on pasture and rangeland. These are not labeled sites for Asana XL nor is alfalfa. **Any forage treated with Asana XL cannot be fed.**

GRASSHOPPER FEEDING RATES—Keep in mind that most feeding by grasshoppers is done in the last couple of nymphal instars and that adult feeding can also be fairly severe. Adults will completely defoliate sunflower and even consume the immature seeds. Defoliation is one kind of damage in soybean but even more severe is pod feeding. One feeding notch on a developing pod permits rot fungi to destroy the pod. We observed up to 20% pod destruction in 1988 where adult

numbers were below 8/sq yard and where defoliation was less than 15%.

The other simple generalization is that an insect feeding rate will double with a 10° temperature change. Thus from 70°F to 80°F the rate doubles and from 70-90°F the rate roughly quadruples. The 90°F days this week really accelerates damage.

GRASSHOPPER CONTROL ZONE—I understand the Commissioner of Agriculture has designated all of the townships in the western tier of Minnesota counties as grasshopper control zones. All of Grant, Stevens, Lac Qui Parle, Yellow Medicine, and Lyon are included. The western half of Swift, Polk and Marshall only are included.

There are townships in other counties designated on the initial list and those added since. I know of severe infestations in Pennington, Red Lake, and Wadena and we have had calls from as far east as Watonwan. For those townships which wish to be considered as control zones a request to the Commissioner of Agriculture is required.

GRASSHOPPER CONTROL IN HOME GARDENS — Home gardens are generally small areas in comparison to the surrounding source of grasshoppers. Thus no matter how effective the insecticide the migration of grasshoppers will tend to overwhelm the intended protection. Home garden insecticides which are very good grasshopper control materials include malathion and Sevin. The treatment of a comparatively large surrounding area is the only way the garden can be protected. If the grasshopper populations are high the treatment of an entire farmstead may be insufficient.

OVERSPRAY—When treating townships roads applicators should be exceedingly careful not to spray people or property other than the roadside itself. There is a \$5,000 penalty included in the 1987 Pesticide law for overspray of persons. A strict interpretation of the law defines drift as trespass and by definition this could become a misdemeanor as well.

—Dave Noetzel
Extension Entomologist

SOYBEAN

SPIDER MITES—A Centrol consultant, Duane Graien, has the dubious honor of finding the first spider mite infestations on soybean and navy bean of the season. At the moment, spider mites infest only the first 4 to 6 rows bordering an alfalfa field. The soybean has unifoliates and the first trifoliolate bearing injury symptoms. Cool weather up until the last week has kept a lid on the spider mite population. A return of last year's problems is not anticipated unless weather turns much warmer and drought intensifies.

HOP VINE BORER AND STALK BORER—Now is an excellent time to make plans for next year's management of hop vine and stalk borers. Both of these corn pests lay their eggs in grasses, such as quackgrass and woolly cupgrass, in late summer and early fall. Larvae hatch in the Spring and move from these grassy areas into surrounding

corn. Hop vine borers usually feed on the stem below ground. Attacked plants usually die. In contrast, the stalk borer may enter a plant via the whorl or through the stem above ground. Stalk borer feeding produces a wide range of injury including dead heart, stunting, tillering, and leaf tattering. Hop vine borer injury is nearing completion while stalk borer injury is now at its peak. Scout fields for stand loss near field edges or in association with grassy patches in fields. If severe stand loss is observed, map these areas and treat when corn is again planted in the field. Make plans to control in-field patches of weedy grasses such as quackgrass and woolly cupgrass to achieve long-term control of the problem.

—Ken Ostlie
Extension Entomologist

VEGETABLES

ASTER LEAFHOPPER (ALH)-CARROTS/CELERY/LETTUCE—ALH is a serious, consistent pest of most Minnesota vegetable crops because it is a vector of aster yellows, a mycoplasma-like organism (somewhere between bacteria and virus). ALH are small (1/8" long), wedge-shaped, olive in color with 3 sets of 2 spots on their head. When to treat for ALH? It depends on the crop and variety. The latest estimate (from Univ. of Wisconsin) is that about 2.5-5% of the ALH that migrated into Minnesota are carrying the yellows mycoplasma. Given the % infective level and the average number of ALH/100 sweeps we

can calculate the Aster Yellows Index (AYI), which allows us to determine when insecticide treatments are justified.

The following AYI's are based on several years research at the Univ. of Wisconsin. The AYI is calculated as follows:

$$AYI = \% \text{ infectivity} \times \# \text{ of ALH/100 sweeps}$$

The treatment threshold for several carrot varieties and celery and lettuce with respect to their AYI is:

Crop	Aster Yellows Index	Crop	Aster Yellows Index
Carrots			
<i>Resistant</i>	100	<i>Susceptible</i>	50
(including varieties Charger, Gold King, Hi Color, Impak, Royal Chantenay, Scarlet Nantes, Scarlet Nantes ST, Six pak)		(including varieties Bonanza, Candy Pak, Danvers 126, Goldpak, Lucky's Gold, Nantes, Nantes ST, Nantesa Superior, Orlando Gold, Red-core Chantenay, Spartan Bonus, Spartan Bonus 80, Super Sprite, PY-60)	
<i>Intermediate</i>	75	Celery	35
(including varieties Casey, Goldpak 28, Goldpak G, Long Imperator, Nanco, Pakmor, Spartan Fancy, Triple Gold)		Lettuce	25

VEGETABLES/Continued

CALCULATION EXAMPLE: As an example let's assume 5% infectivity level and after taking 4 sets of 25 sweeps in 4 different areas of a carrot field we have a total of 10 ALH/100 sweeps.

$$AYI = 5 \times 10 = 50$$

If our carrot field consisted of one of the more susceptible varieties insecticide treatment would be needed.

Current insecticides* registered for use in Minnesota are:

Material	Product/ac	AI/ac	Material	Product/ac	AI/ac
<u>CARROTS</u>			<u>ONIONS</u>		
Sevin	XLR plus 2 pt	1 lb	Diazinon	4E 1 pt	1/2 lb
	80% W 1 1/4 pt		Malathion	5E 1 1/2 pt	1 lb
Methoxychlor	2E 8 pt	2 lb	Guthion	50W 1 lb	1/2 lb
Malathion	5E 2 1/2 pt	1 1/2 lb	Lannate	90SP 1 lb	0.9 lb
Pydrin	2.4E 5 1/3-10 2/3 fl oz	0.1-0.2 lb	Nudrin	1.8L 4 pt	"

*Read label for limitations, reentry times and preharvest intervals.

—Bill Hutchison
Extension Entomologist

POTATO

COLORADO POTATO BEETLE (CPB)—Eggs began to hatch at Crookston and Grand Forks. Numbers of CPB adults appear to be relatively high. Control of larvae should begin about the 1st week in July. Most Red River Valley growers should reduce pyrethroid use to no more than a

single application this year. It should not be the first compound in the chemical rotation that the grower develops.

—Dave Noetzel
Extension Entomologist

MISCELLANEOUS

BARLEY THRIP—Two adult barley thrips/plant were reported from the Crookston area and calls have come to us from Red Lake County as well. Carlyle Holen and I surveyed several fields in that area including the one above and found less than one thrip per stem with no visible thrip

damage. Adult thrips were easy to find but were at levels considerably below one adult per stem.

—Dave Noetzel
Extension Entomologist

BLACKLIGHT TRAP CAPTURES—The following table summarizes the captures made last week. June 14-21, 1989.

District	Location	Nightly captured			
		European corn borer		Armyworm	
		Average	High	Average	High
NW	Crookston	2	6	4	12
WC	Fergus Falls	2	5	5	11
C	Glencoe	12	32	8	16
C	Olivia	3	9	6	28
SW	Lamberton	6	16	1	3
SW	Worthington	18	23	4	6
SW	S. Lamberton	1	4	—	—
SC	Blue Earth	11	52	7	16
SC	LeSueur	11	30	2	7
SC	Brown	1	1	—	—
SC	Clarks Grove	21	62	3	5
SC	Waseca	2	4	1	4
SC	Calendonia	7	44	8	25
SE	Randolph	1	2	3	6
SE	Mankato	T	1	1	5
SE	Goodhue	7	20	1	5

—Ken Ostlie
Extension Entomologist

DIAL U HIGHLIGHTS

Bronze birch borer damage has been apparent. Watch for branches dying back, ridges under the bark and D-shaped exit holes which indicate borer activity. Keep the tree as healthy as possible by watering and mulching. Birch borers do not survive in healthy birch. We are past the time for effective insecticide treatments. Small limbs that are infested should be pruned out in August when the adults are not active. Large limbs and trunks that are infested will probably die regardless of any attempted control. See AG-FS-1417, *The Bronze Birch Borer*.

Horticulture—With warmer summer weather we have received numerous calls about watering the lawn. Lawns that were seeded or sodded last fall or this spring **must** be watered regularly. Don't even consider letting such lawns go dormant. The newer the grass, the more often it needs water, since a shallow, immature root system will not be able to provide enough moisture to keep the tops supplied for long in hot, windy weather.

Lawns that have suffered from patch diseases should also be watered frequently enough to prevent wilting and stress.

Hold off using weed killers if temperatures continue to be hot. Most are less effective in heat, and they're more volatile, increasing the chances of accidental damage to surrounding plants. In certain cases where control is imperative (i.e., poison ivy at the lake cabin) use glyphosate to spot treat with a sponge tied to a stick. And it's

always possible to dig some of the worst weeds out by hand.

We are also getting pruning calls. Most shade trees can be pruned in July. Wait till August to trim birch and later in fall for elms. Fruit trees are best pruned in late winter/early spring. It should not be necessary to use any wound dressing or pruning paint when trees are pruned at a safe time of year.

Fireblight—As predicted, fireblight is now causing damage on susceptible apples and crabapples. Cotoneaster, pear and mountain ash are also susceptible. Avoid excessive pruning and nitrogen fertilization which promotes succulent growth which is more susceptible. Start pruning apple trees when they are young and continue annually as this minimizes the size of the cut. Large cuts are often followed by the growth of fireblight susceptible suckers. Root sprouts and suckers should be cut off at a short distance above the soil line during the dormant season. Always disinfect pruning tools between cuts—especially during the growing season, and when purchasing new plants select resistant varieties. For more information refer to *Fireblight*, AG-FS-1159.

Elm leafminer—Callers have noticed elm leaves turning brown and in some cases dropping. It is caused by an insect called the elm leafminer which is very similar to birch leafminer. Their feeding is finished for this season and there is no control at this time. Elm leafminer activity

DIAL U HIGHLIGHTS/Continued

usually starts the first week of May. Unlike the birch leafminer, there is only one generation. Healthy, mature elms are not adversely affected by this insect, although young trees can be injured from heavy infestations. If control is desired, spray when the mines first appear with dimethoate (Cygon) or acephate (Orthene). Acephate should not be used on American elms.

Strawberry root weevil and other home-invading weevil calls are starting to increase. These weevils will enter homes but are harmless to people and property. Control is difficult. The presence of the insects can be minimized by sealing cracks, gaps around windows and doors, and other places where they may enter. Chlorpyrifos (Dursban) and

diazinon can be sprayed around the outside of the building, although the effect is temporary.

Other common calls include carpenter ants, ladybird beetle larvae, peonies that wouldn't blossom, trees with die-back, the safety of using grass clippings as mulch after weed killer has been used (answer: it's okay after you mow twice and get rid of those clippings), mushrooms in lawns and oak wilt.

Jeffrey Hahn
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