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PLANT PEST Newsletter

MINNESOTA EXTENSION SERVICE

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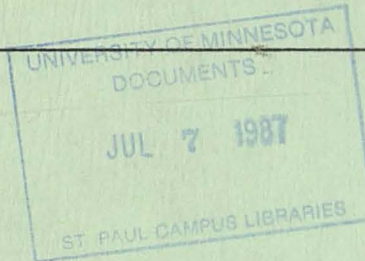
PPST12

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ALFALFA

POTATO LEAFHOPPER (PLH) -- The second cut is just starting on much alfalfa in south-eastern Minnesota. The early regrowth after this cutting will be very susceptible to damage by potato leafhoppers. Damage symptoms do not show, however, until after both

yield and quality have already been lost, so don't base management decisions on symptoms. Alfalfa should be checked for PLH, preferably very early in the regrowth period and weekly thereafter, using an insect sweep net.

Two ten-sweep or one twenty-sweep sample should be taken at each of 5 sites while walking briskly across the field. Use 20-sweep samples when the alfalfa is shorter and if insect numbers are not very high. In very short, stubbly alfalfa, two 20-sweep samples per site will give more representative information. If insects are very abundant, 10-sweep samples are easier to count. To examine the sweepnet contents, open the bag just a little and let the insects, out only a few at a time, counting as they escape. Total the numbers of adults and nymphs to determine total PLH/sweep, but notice if there are nymphs, and whether they are very small, or larger. Because they do not fly away, late-stage nymphs are especially damaging.

Do not take sweep samples when the alfalfa is wet, or when it's very windy (more than 10 mph); results will be meaningless. 5-mph winds reduce the catch to 66% of that in still air, 10-mph winds to 43%, so correct for this if you must sweep in a wind. Cool conditions also reduce catch efficiency: at 59°F the catch is 56% of that at 77°F.

If PLH damage is severe, carbohydrate reserves in the crown will be depleted. This will reduce yields, not only in the current regrowth period, but in subsequent ones as well (e.g., the fourth cutting for fields being managed intensively, and, in some cases, the first cut next spring. Likewise, depletion of crown reserves may increase winter injury of the alfalfa.

-- Penny Ives, Extension Entomologist

CARROTS

ASTER LEAFHOPPERS (ALH) AND ASTER YELLOWS (AY) -- Last week I mentioned that Dr. Chapman had found an infection level with AY of 4.5% in the ALH he tested; he is now advising that a level of at least 5% be used in calculating when to spray, using the Aster Yellows Index. Drs. Chapman and Wyman (University of Wisconsin) have recently updated the list of cultivars for which they have determined the Aster Yellows Index, and I have written to request a copy. Meanwhile, here is the list of cultivars rated until last year:

The Resistance/Susceptibility of some Carrot Cultivars and their Action Thresholds (Aster Yellows Index) for 1986.

Resistant Cultivars with Aster Yellows Index of 100

Scarlet Nantes	Six Pak
Gold King	Hi Color 9
Royal Chantenay	El Presidente

Intermediate Cultivars with Aster Yellows Index of 75

Spartan Fancy	Red-cored Chantenay
Spartan Delite	Midas Touch
Peter Edwards GT 26	Long Imperator 58
Trophy 301	Dagger 78
Danvers Gold	

Susceptible Cultivars with Aster Yellows Index of 50

Danvers 126	Orlando Gold
Peter Edwards PY60	Gold Pak
Lucky's Gold	Bonanza
Spartan Bonus	Touche
Spartan Bonus 80	

This information on the AY Index can be used in conjunction with the infection level to determine how many ALH must be present on the plants to justify the cost of a spray to control. This is called the economic threshold (ET) number of ALH.

$$ET = AY \text{ Index} \div \% \text{ infection of ALH}$$

For example, 20 ALH/100 sweeps = $100 \div 5$ --i.e., with an infection level of 5%, resistant carrot cultivars (AY index = 100) would need to be sprayed if 20 or more ALH were obtained per 100 sweeps with a 15"-diameter insect sweepnet. The AY Index of celery is 35 and lettuce is 25.

-- Penny Ives, Extension Entomologist

CEREALS

Spring Wheat -- Some diseases to see on the crop. The leaf spots Septoria Leaf Blotch and Tan Spot are moving onto the flag leaf of the wheat that was not treated. These diseases may be observed throughout the Valley. In addition, watch for some very small leaf rust pustules showing up on the variety Marshall. These small pustules are not expected to cause crop loss at this late date.

Mildew which usually stops early in the season is being found on the flag leaf in Norman, Polk, and Mahnommen Counties. This may be due to the general weather conditions and lack of resistance in the variety. Some growers treated with sulfur and it appears that they were successful in stopping the disease. In sulfur-treated fields, the disease did not move onto the flag leaf. Most of the mildew I saw was east of Hwy 9. Old infections will appear as necrotic lesions on the lower leaves. On flag leaves, new infections will appear as a white or dark gray cottony mass on the leaf surface.

Barley -- Leaf rust is being found on the flag leaves of Robust barley. Pustules are small. Net Blotch is also being found; it has a dark brown elongated spot as it's characteristic symptom.

There are some very small, dark-colored spots on Robust, scattered around the upper leaves. I believe these are melan spots, and should not do any damage. These spots often occur after hot, humid weather.

-- Howard L. Bissonnette, Extension Plant Pathologist

CORN

CORN ROOTWORM -- Corn rootworm adults are beginning to emerge in southern Minnesota. This week, newly emerged northern corn rootworms were observed in extremely low numbers at Waseca and Rosemount. Peak emergence will occur throughout southern Minnesota within the next two weeks.

Adult scouting provides valuable information to help determine if a corn rootworm insecticide will be needed in 1988. Because corn rootworm development is ahead of normal, scouting should begin as early as the third week of July and continue through August. Using whole-plant counts, either count 5 plants at 10 locations or use sequential sampling with the following decision table. Sequential sampling is designed to rapidly categorize low or high populations while focusing additional effort on populations bordering economic levels. If the total count drops into the LOW category, quit sampling and return in 7 days. If the weekly counts remain in the LOW category, no insecticide will be needed in 1988. If counts enter the HIGH category, quit sampling for the summer and plan on crop rotation or a soil insecticide. Finally, if counts remain in the UNDECIDED category, sample again in 7 days. At season's end, fields in the UNDECIDED category may or may not benefit from a soil insecticide.

DECISION TABLE FOR SEQUENTIAL SAMPLING OF ADULT BEETLES

No. Plants Sampled	Population Category (total beetle count)		
	Low	Undecided	High
10	2	3-17	18
12	4	5-19	20
14	6	7-21	22
16	8	9-23	24
18	10	11-25	26
20	12	13-27	28
22	14	15-29	30
24	16	17-31	32
26	18	19-33	34
28	20	21-35	36
30	22	23-37	38
34	26	27-41	42
38	30	31-45	46
42	34	35-49	50
46	38	39-53	54
50	42	43-57	58

Caution: Northern corn rootworm larvae are known to be less damaging than western corn rootworm larvae. The currently accepted threshold of 1 beetle per plant was established for western corn rootworms. The threshold for northerns is not known but is assumed to be higher, possibly 2 beetles per plant. Problems with soil insecticide performance continue to be reported. As damage peaks, lodging will become more noticeable. Lodged fields with extended diapause problems have already been detected in south central Minnesota.

-- Kenneth R. Ostlie, Extension Entomologist

EUROPEAN CORN BORER (ECB) -- ECB oviposition continues in northern Minnesota. At the NW Experiment Station, shotholing averages 20-30%. Egg masses are present with most larvae in first to second instars. Survival so far appears excellent. Fields should be monitored now and we expect treatment decisions to be made within the next week. We expect that most fields at the station will require treatment. Corn in many areas of northern Minnesota is in the pretassel stage. As the tassel advances, shotholing criteria for treatment breakdown as more larvae feed in leaf axils instead of whorl leaves. Be careful!

-- David M. Noetzel, Extension Entomologist

POTATO

COLORADO POTATO BEETLE (CPB) -- CPB is pupating this week. The peak of the first generation has passed. We've had several reports of nonperformance of both Pydrin and Asana. We believe this is the expression of resistance. Control is perhaps still 90 or 95%, with both products performing similarly. The best way to manage this problem is to switch insecticides. Use organophosphate or carbamate Compounds, such as Thiodan, Imidan, Furadan, etc., instead of pyrethroids. None of these products will perform as we have seen Pydrin perform. All perform similar to the way Pydrin and Asana are performing now. In terms of future use, we should restrict the pyrethroids to a single application, which should be timed not to occur at peak abundance of CPB.

POTATO LEAFHOPPERS (PLH) -- PLH are present from central to northern Minnesota. We have seen occasional fields where there have been no insecticide application with more than 1 adult leafhopper per sweep and, in some cases, nymphs approaching 10 per 100 leaves. These fields should be treated for potato leafhopper.

-- David M. Noetzel, Extension Entomologist

Early Blight -- A small number of Early Blight lesions are starting to show up on potatoes in the Sand Plains irrigation area. These lesions are on the older, lower leaves. Some air pollution injury was found in the Big Lake area. I suspect ozone to be the cause. The first symptoms may be small necrotic spots outlined by the leaf veins. Later the leaf turns yellow. No symptoms were seen on the new growth, (10 days old).

-- Howard L. Bissonnette, Extension Plant Pathologist

SMALL GRAIN

ARMYWORM -- We also observe the all numbers of armyworms both in corn and small grain. In most cases, numbers are insufficient to treat. We do have a report of one local infestation in Clay County with several larvae per sq. ft. and moderately severe defoliation, at least in local situations. At this point, though, the army-worm numbers in corn are not sufficient to treat.

BARLEY THRIP -- There is no or minimal visible barley thrip damage now. Barley is headed. We did observe from 4 to 20 adult incidents per plant in a number of fields. It's probably too late to treat on this insect, since most grain is heading now.

-- David M. Noetzel, Extension Entomologist

SOYBEANS

Phytophthora Root Rot -- The early-season lack of water did not prevent some Phytophthora Root Rot (PRR) from developing. Samples from SE and SW last week confirm this disease is still present and stand loss has occurred in some fields. Plants as small as 2-3 inches are dead and even larger plants 10-15 inches are found to be wilting and dying. The next week or two is a good time to check problem areas for evidence of PRR. Small plants may have only the main root and few leaves present. The remaining dead plant appears dry and toothpick-like. Larger plants have wilted, dry, and dead leaves attached. The entire stem may be brown, or a distinctive change from lime-green to brown may be evident on the surface of the lower stem. At this time one should note the field areas affected and record the soybean variety disease race resistance level. These data will be helpful in determining what you should plant in 1987 and beyond.

Brown Spot -- Brown spot is still present and common (see PPST10 from two weeks ago). If the weather becomes more favorable for leaf disease, growers may want to consider a foliar fungicide treatment - see Table A.

CHECK LIST TO DETERMINE NEED FOR FOLIAR FUNGICIDES

Factors	Point Value
Rainfall, dew and humidity upon early bloom and pod set are: above normal - 4 / normal - 2 / below normal - 0	_____
Soybeans grown last year: yes - 3 / no - 0	_____
Chisel-plow, disk or no-till was used: yes - 1 / no - 0	_____
Black spots (pycnidia) are present on fallen petioles and septoria brown spot is on lower leaves: yes - 2 / no - 0	_____
Early maturing variety grown: yes - 2 / no - 0	_____
Harvest is expected to be delayed. Beans will remain in field after mature: yes - 2 / no - 0	_____
Yield potential is better than 40 bushels/A: yes - 2 / no - 0	_____
Weather conditions predicted favorable disease development (warm, wet from early pod fill to maturity): yes - 3 / maybe - 2 / slight - 1	_____
TOTAL	_____

Point values above 16 will probably mean higher seed quality and may increase yields.

Response from soybean fungicide application is better when two applications are made at R-3 and R5 growth stages. Single applications result in less yield increase even in years with severe disease pressure. Those who may want to consider fungicide use should begin to scout fields now. Aerial application is suggested with a minimum of 5 gallons of water per acre for uniform coverage of the soybean plants.

-- Ward C. Stienstra, Extension Plant Pathologist

MISCELLANEOUS

BLACKLIGHT TRAP CAPTURES -- The following table summarizes light-trap captures of important moth pests from June 24-30, 1987.

District	Location	Armyworm		European corn borer	
		Average	High	Average	High
NW	Crookston	3	10	2	6
NW	Roseau	5	8	1	1
WC	Fergus Falls	12	31	6	11
WC	Morris	5	13	1	3
C	Glencoe	3	9	13	26
C	Olivia	6	15	6	16
C	Pierz	0	0	0	0
SW	Lamberton Expt. Stn.	6	10	9	25
SW	Lamberton	7	12	9	30
SW	Worthington	30	37	25	29
SC	Blue Earth	19	30	2	7
SC	LeSueur	17	44	3	17
SC	Sleepy Eye	8	15	2	5
SC	Waseca	7	20	4	8
SC	Blooming Prairie	6	10	trace	1
SE	Hastings - Molitar Farm	10	13	1	2
SE	Hastings - Selton Farm	16	7	1	2
SE	Burnsville	7	12	trace	1
* SE	Clarks Grove	-	-	-	-

* No report this week.

Data are obtained through the cooperative efforts of the Minnesota Dept. of Agriculture, the University of Minnesota and its Agricultural Experiment Station, and commercial and private cooperators.

-- Kenneth R. Ostlie, Extension Entomologist

DIAL U WEEKLY HIGHLIGHTS -- For the week of June 21-27, 1987

Seeding/Sodding -- We continue to get questions on seeding versus sodding the lawn. In the southern two-thirds of the state, seeding anything but small patches would probably not be a good idea. Hot weather, lack of moisture, and competition from weeds would make the job very difficult. Wait until the latter part of August or early September to seed large areas of grass. Sodding can be done now, but, as with seeding, special care must be given to watering.

Tree Problems -- Foliar yellowing, wilting, and scorch are common on many species of trees. Causes tend to be abiotic but occasionally a pathogen is involved. Verticillium wilt is the most common wilt pathogen. Check for a greenish color in the outer sapwood rings. (See AG-FS-1164, "Verticillium Wilt of Trees and Shrubs")

Spiders -- We have received questions on indoor spiders. An occasional spider is common and physical removal is the only control desired. Consistent numbers of spiders indicate they have a steady, available food source (e.g., sowbugs). Control of the food source will effectively control the spiders. People worry about being bitten by spiders; however, very few spiders are capable of breaking the skin. The black widow (which is very uncommon and shy) is the only spider whose bite would be considered dangerous. A black widow bite is very unlikely to occur in a home.

Drought stress is showing up on many different plants, from garden flowers to trees and shrubs. If possible, thoroughly water everything but large, mature trees on a weekly basis, unless there is ample rainfall. Turf is the real exception. It can go dry and dormant, then come back green and healthy in fall, when rains resume.

Honeysuckle Berries -- Every summer we get questions about the edibility of honeysuckle berries. These fruits are not poisonous, but they are not tasty, either. Therefore, they aren't considered edible, though it shouldn't hurt anyone to eat the ripe red or orange berries.

Dutch elm disease information continues to be our number one plant pathology call.

Common Entomology Calls -- The most common questions we have been receiving have been about ants, including carpenter ants, insect galls, and aphids.

Deborah Brown
Horticulture

Jeff Hahn
Entomology

Cynthia Ash
Plant Pathology

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