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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 90-19] [Aug. 10, 1990]

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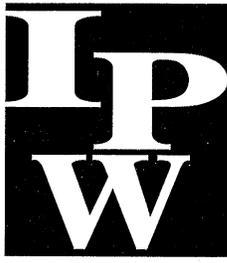
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Insect Plant Disease Weed Science

NEWS

UNIVERSITY OF NEBRASKA COOPERATIVE EXTENSION • INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES

No. 90-19

Aug. 10, 1990

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INSECT SCIENCE

Corn Leaf Aphids Found Abundant in Some Fields

Several corn and sorghum growers have noticed large numbers of corn leaf aphids in their fields in south-central and southeast Nebraska. In general, we do not feel that controls for this pest are justified.

On sorghum, the corn leaf aphids are on the upper plant. These aphids generally will leave the plants once heading begins and little if any damage occurs. Occasionally, when plants are under drought stress, corn leaf aphids may cause the boot and flag leaf to discolor and some tissue death may be noticed. If this occurs and heading is delayed, an insecticide treatment may be necessary to reduce aphid numbers and allow heading to occur.

On corn, the aphids are usually near the top of the plants in the tassel area. Ohio State University entomologists feel that treatment is only justified when 50% or more of a stand exhibits heavy corn leaf aphid infestations and the plants are under severe stress. A plant is considered heavily infested when there are too many aphids to count or even estimate. These heavy infestations can interfere with pollination. If pollination has been completed, corn leaf aphids are usually not considered an economic threat in Nebraska, except when moisture and heat stress are extreme.

Steve Danielson and Leroy Peters



UNIVERSITY OF NEBRASKA-LINCOLN, COOPERATING WITH THE COUNTIES AND THE U.S. DEPARTMENT OF AGRICULTURE



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'Most Overestimate Soybean Damage'

Use Guides To Determine Defoliation Levels

Bean leaf beetle numbers soon will be increasing in many soybean fields due to emergence of first generation adults. Bean leaf beetles are the most important defoliating insect pest of Nebraska soybeans, although several other insects also may potentially damage soybean foliage. These include various caterpillars (green cloverworms, loopers and salt marsh or woollybear caterpillars), grasshoppers and blister beetles. Fields should be checked weekly for damage levels and the presence of insects.

Nebraska treatment guidelines are based primarily on the level of defoliation, so they apply to all defoliating insects. Between bloom and pod fill, defoliation levels of 25% and above with bean leaf beetles (or other defoliating insects) warrant treatment. It's difficult to accurately estimate defoliation. Nebraska research has shown that individuals, regardless of their level of experience, consistently tend to overestimate the actual amount of defoliation. The illustration of damaged leaves below (*Figure 1*) shows six defoliation levels and can be used as a guide to help you more accurately estimate defoliation.

A grid system (*Figure 2*) also can be used to estimate defoliation. Pick 10 trifoliolate leaves from several selected plants. Discard the most damaged and least damaged leaflets in each trifoliolate. Take the 10 remaining leaflets and place each one separately on the grid. Measure the length (in grid units) and estimate the number of missing squares in each leaf. Use *Table 1* to determine the percent defoliation for each leaf. Calculate the average defoliation for the 10 leaves. Repeat this process at several places in the field. Compare the percentage defoliation based on the grid system with the visual estimate and determine whether treatment is necessary.

Bean leaf beetles (and sometimes other insects such as grasshoppers and spotted cucumber beetles) also may feed on developing pods after leaves begin to yellow and are less attractive for feeding. Bean leaf beetle feeding is usually restricted to scraping off the surface tissue of the pod wall. Seeds are rarely fed upon. However, the pod scarring may

Continued on page 117

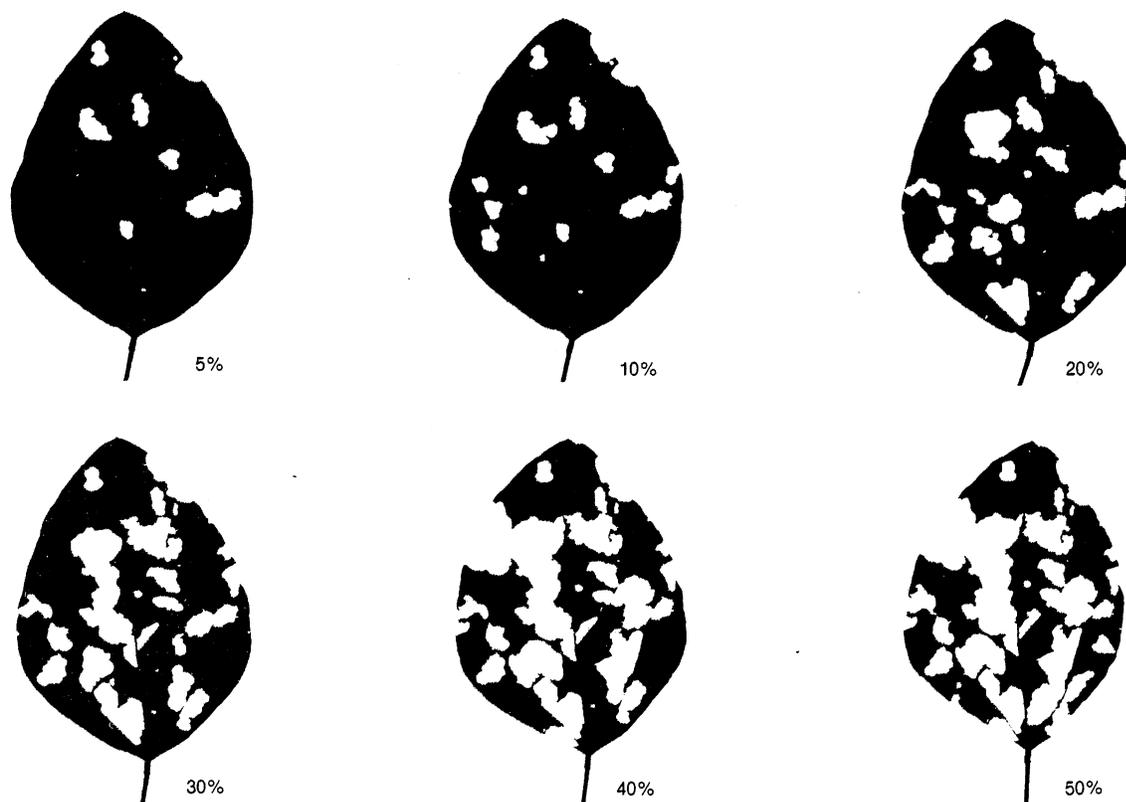


Figure 1. Photo comparison method for checking defoliation of soybean leaves

Use Guides (Continued from page 116)

Table I. Percent defoliation when measured with the grid method.

Leaf Length (in units)	Percent Defoliation if Number of Squares Missing Is												
	1	2	3	4	6	8	10	15	20	25	30	40	
8	2	5	7	9	14	18	22	34	45	56	67	90	
10	2	3	5	7	10	13	17	25	33	42	50	67	
12	1	2	4	5	8	10	12	19	25	31	38	50	
14	1	2	3	4	6	8	10	15	20	25	30	40	
16	1	2	2	3	5	7	8	12	17	21	25	33	
18	1	1	2	3	4	6	7	11	14	18	21	29	
20	1	1	2	2	4	5	6	9	12	16	19	25	

open the pod to invasion by fungi or other pathogens which can cause seed discoloration or shriveling. If insects damage 10% or more of the pods, treat with insecticides. Insecticides labeled for soybean insect control are listed in the Extension publication, *1990 Insect Management Guide for Alfalfa, Soybeans, Wheat, Range, and Pasture* (EC90-1511). For more information about identification, sampling and treatment guidelines, refer to Extension publication, *The Bean Leaf Beetle in Soybeans* (G90-974).

Bob Wright

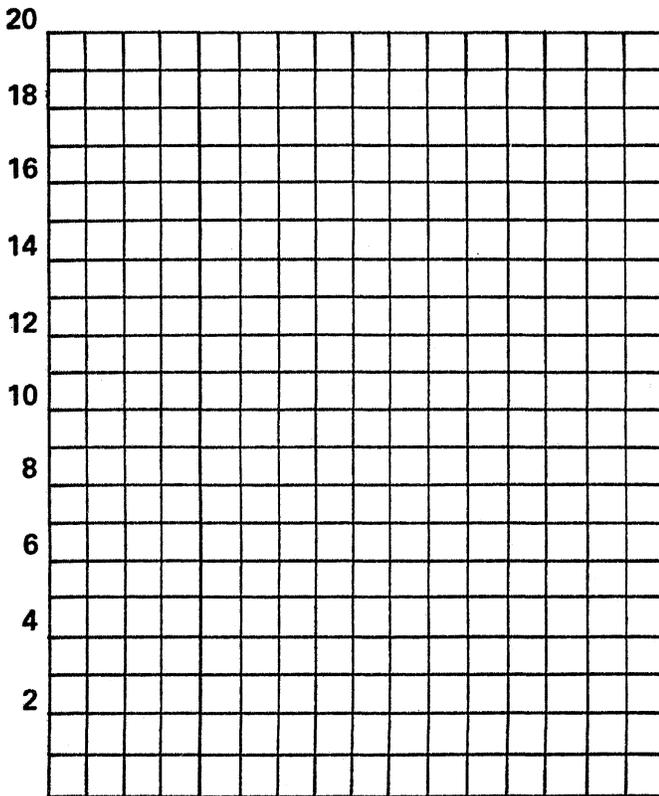


Figure 2. Grid method for measuring percent leaf loss

It's Time to Scout for Mexican Bean Beetles, Western Bean Cutworms

Mexican bean beetle feeding activity appears to be up this year in the Panhandle. Mexican bean beetle damage has been more evenly distributed within fields, indicating higher populations may be present. Eggs have recently been hatching and larval damage can be expected to increase.

To scout for Mexican bean beetles, randomly inspect 50 to 100 plants for egg masses or larvae. If one egg mass is found per six plants, treatment is needed. Later, when egg masses are no longer present, one larva per plant may warrant treatment. Chemical treatments will not be effective against eggs or pupae; therefore, it is important to time treatments when most Mexican bean beetles are in the larval or adult stages.

Western bean cutworm pheromone and black light traps have indicated a fairly significant flight of moths in some areas this season. It appears peak moth activity was last week (July 30-Aug. 5). Apply treatments two to three weeks after the peak trap catches. By this time most eggs should have hatched, the larvae will still be relatively small and easily controlled, and little seed damage should have taken place.

When scouting for western bean cutworms, consider their severity in adjacent cornfields. The development of western bean cutworms is similar in corn and the larval stages are easier to find in the corn because they are present in the ear. Bean fields adjacent to severely infested cornfields will likely have significant infestations. Remember that the best treatment timing for western bean cutworm control is not the same in corn and beans. In corn, young larvae will feed in the tassels and then move into the ear where control is not possible. Therefore, the time for optimum control in most corn fields has passed. Later treatment in beans allows for a more complete egg hatch. Scouting in dry bean fields is much more difficult. The larvae actively feed only at night and seek sheltered areas in the soil during the day. Therefore, it's important to look for the larvae by sampling early in the morning or late in the evening.

The same insecticides can be used to control both of these dry bean insects; however, lower rates are recommended for control of the Mexican bean beetle. For a list of available insecticides, refer to the *1990 Insect Management Guide for Sugarbeets, Dry Beans, Sunflowers, Vetch, Potatoes, and Onions* (EC 90-1537). It is available from your local Extension Office.

Gary Hein

EPA Cancels Capture Exemption

The Environmental Protection Agency has canceled the Crisis Exemption for using Capture (bifenthrin) to control spider mites on corn. Under the exemption, use would have been allowed until Aug. 10. Further use of Capture this season is not allowed and the EPA has indicated they will not allow any future Crisis Exemptions for this product.

Similar actions were taken in Kansas and other states. The EPA is particularly concerned about the toxicity of synthetic pyrethroid pesticides, such as Capture, to aquatic organisms. This may be the reason they have discontinued use of this product.

Steve Danielson

For More Information

The following new or revised publications were recently released by the University of Nebraska Department of Agricultural Communications:

G90-989 Testing for Bacterial Safety of Drinking Water. This NebGuide discusses the need and procedures for testing for bacterial safety of drinking water.

This publication and many more are available free or at a nominal charge at your local Extension office or from the UNL Department of Agricultural Communications. For a Publications Catalog, contact your local Extension office or write Bulletins, 105 Ag Communications Bldg., University of Nebraska, Lincoln, NE 68583-0918.

PLANT DISEASE

Manage Alfalfa Stands for Longevity

One of the first steps in proper alfalfa stand management is grower attitude. Some growers consider alfalfa a primary crop and manage it accordingly, but others consider it a secondary crop which usually results in a less productive stand.

Many factors contribute to the decline in productivity of an alfalfa stand. Under favorable growing conditions and proper management, alfalfa stands in Nebraska can last more than 10 years. Unfortunately, the productive life of a stand usually is shortened by poor management practices, unpredictable weather, or pest problems. Proper management will reduce the risk of losing plants to environmental stresses, disease and insect invasion, poor soil conditions, and other factors that relate to stand decline.

Crown and upper root rots are chronic diseases that occur wherever alfalfa is grown. In stands more than two years old, most alfalfa plants show some crown and upper root rot. When pressures from disease and stress become too great, infected plants die. The stand is thinned, weeds invade, and both yield and quality are reduced. Crown and

root rotting organisms are major contributors to the progressive decline of productive alfalfa stands. Managing an alfalfa stand for longevity, therefore, involves practices that prohibit or slow down crown and root rot development.

Many of these cultural practices relate to fall management. For seeding this fall, select cold-tolerant alfalfa varieties resistant or highly resistant to bacterial wilt, anthracnose, and *Phytophthora* root rot. Cutting or grazing alfalfa three to four weeks before the first killing frost forces plants to regrow and use carbohydrate reserves that are needed to initiate growth in the spring. In Nebraska, take a final cutting before mid-September to allow time for sufficient top growth prior to the onset of dormancy. Reserve carbohydrate levels in roots are critical to winter survival, reduced crown and root rot, and spring green-up.

John E. Watkins

How to Identify Soybean Cyst Nematode Damage

As you scout soybean fields for various diseases and insect pests, keep in mind the symptoms and signs of damage caused by soybean cyst nematodes. Now is when the effects of root feeding and colonization are most easily seen on above-ground plant parts. Although identification of soybean cyst nematode cannot be made entirely on the basis of above-ground symptoms, they provide valuable clues for follow-up examinations of the root biomass.

Above-ground symptoms include stunted, unthrifty plants that may appear yellow and chlorotic. Affected plants commonly exhibit yellow or brown leaf margins. Rarely are such plants randomly distributed among healthy plants; rather, look for groups of affected plants in patchy areas that are roughly circular or oblong. If oblong or oval in outline, the affected area generally extends in the direction of tillage. Plant height and other injury symptoms may vary across the infested area, with damage being most severe in the center and becoming less severe toward the margins.

Be aware, however, that these above-ground symptoms merely provide some justification for further examination. Many other conditions may cause the same or similar symptoms, especially this year because of standing water and the presence of other pathogens favored by warm, wet conditions.

If soybean cyst nematodes are suspected, investigate further by digging (not pulling) plants near the margins of suspect areas. Gently wash or tap the soil from the roots. Examine the small feeder roots and rootlets. Look for white

to yellow, lemon-shaped cysts about one-half the size of a pin head; cysts are much smaller than *Rhizobium* nodules so a low power (10X to 15X) hand lens may be helpful. The presence of cysts provides positive identification of the problem.

If you don't see any cysts but still suspect soybean cyst nematodes as the cause of damage, submit soil samples for laboratory analysis. (The nematode may have progressed to the brown cyst stage and be difficult to detect.)

For best results, take 10 to 20 sub-samples in a zigzag pattern through each acre-sized suspect area. Using a trowel, narrow-blade shovel or soil probe, collect soil and root samples from within the row to a depth of about 6 to 8 inches. Composite the sub-samples in a bucket and mix the soil thoroughly. Place about a pint of the mixed soil in a plastic bag or plastic-lined container. Next, complete a Specimen Identification Form (available at your county Extension office) and mail to the Plant Disease Diagnostic Laboratory, 448 Plant Sciences Hall, University of Nebraska, Lincoln 68583-0722 or other university or commercial laboratory equipped to handle nematode assays.

Remember that if soybeans infested with these nematodes are growing under optimum conditions or if the nematode levels are relatively low, above-ground symptoms may not be evident. The only sign may be that plants do not yield as well as expected. Consequently, it may be well to check fields with a history of low yields for soybean cyst nematode even though plants appear healthy.

David S. Wysong

Environmental Programs:

Pesticides and Farm Sales May Not Mix

It probably happens at the majority of farm sales and at some residential auctions or sales. A pesticide container is lifted off the shelf and sold on the auction block to the highest bidder. Sometimes, a pesticide container is at the bottom of a lot of goods and the buyer is not aware of the individual items included in the purchase until the box is emptied at home.

Following are some EPA guidelines to consider concerning the sale of pesticides at auctions:

1. General use pesticides can be sold in original, sealed, unopened containers.
2. Restricted use pesticides also can be sold in original, sealed, unopened containers. However, any sale of restricted use pesticides places the seller in the role

of a dealer. Dealers must be registered with the EPA.

3. If the pesticide container has been opened, it cannot be sold.
4. If the product has been canceled or suspended, it cannot be sold. Contact the EPA to confirm the product's status. (In Nebraska, call (402) 437-5080.)

These guidelines are especially important to auctioneers, who may discover pesticides during an inventory of goods before the sale.

Larry Schulze
Extension Pesticide Coordinator

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