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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 90-16] [July 20, 1990]

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Insect
Plant Disease
Weed Science NEWS

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In This Issue

INSECT SCIENCE

Begin Scouting for Corn Rootworm Beetles

Adults of both western and northern corn rootworms are beginning to emerge in Nebraska corn fields. Both are 1/4 inch long. Western corn rootworm adults are pale yellow-green beetles with a black stripe on each wing cover, while northern corn rootworm beetles are a solid green-tan. The western corn rootworm is the predominant species throughout Nebraska; the northern corn rootworm is most common in northeastern Nebraska. During late July and August these beetles lay eggs that overwinter in the soil. In spring they produce rootworms that may damage next year's corn. However, more than 60% of Nebraska's continuous corn fields are estimated to **not** have economic corn rootworm infestations in a given year. **Weekly scouting for corn rootworm beetles is the only way to determine whether economic infestations are likely to occur next year.**

Scouting for corn rootworm beetles should begin in mid- to late July and continue weekly until threshold levels are exceeded or beetle activity stops, which is usually by the end of August. Examine 50 plants in each field, with some samples taken from every quarter of the field. Sampled plants should be several paces apart so that examining one plant doesn't drive beetles off of the next plant to be sampled. Although most beetles will be found near the ear, the most reliable information is obtained if the whole plant is examined. Search carefully because beetles may hide behind leaf sheaths or in silks in the ear tip.

Counts of corn rootworm beetles in July and August can provide growers with information on the potential for corn rootworm damage during this season and next year. First, information on beetle numbers during 1990 can be used to predict the damage potential for 1991. Secondly, beetle counts will allow you to determine in which fields it would be profitable to use an adult control program to reduce the number of eggs laid.

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Begin Scouting *(Continued from Page 97)*

If beetle counts exceed 0.75 beetle per plant, damaging populations of corn rootworms are possible in that field next year. To prevent or reduce corn rootworm damage in fields exceeding this threshold, rotate those fields out of corn or treat them with a soil insecticide if corn is planted again. Fields remaining below the level of 0.75 beetles per plant do not need a soil insecticide next year. This threshold assumes a population of 24,000 plants per acre. If different plant populations are used, modify the thresholds. This process is explained more fully in NebGuide *G86-774, Western Corn Rootworm Soil Insecticide Treatment Decisions Based on Beetle Numbers.*

Adult Control Programs

One strategy for corn rootworm control is to kill the adults before they lay enough eggs to damage next year's crop. This strategy requires careful monitoring of corn rootworm beetles before and after treatment. If 10% of the female beetles have mature eggs and there are 0.75 beetles per plant, apply control measures. After treatment, continue monitoring the plants until beetle activity stops. Retreatment is recommended if corn rootworm numbers build up and exceed 0.5 beetles per plant. Late maturing fields are particularly susceptible to corn rootworm beetles moving into them in late summer from nearby early maturing fields.

Adult control programs can successfully reduce corn rootworm damage the next year, but regular scouting is needed. If multiple insecticide applications are needed to control corn rootworm beetles, consider the cost of the adult control program compared to a single application of an insecticide at planting or cultivation.

Silk Clipping

Corn rootworm beetles occasionally will damage green silks to the extent that pollination is reduced and seed set is affected. This is relatively rare in Nebraska field corn. Problems with silk clipping are most likely in late-planted or late-silking fields. Insecticidal controls are suggested when severe silk clipping (silks clipped down to the husk) occurs at or before 25-50% pollen shed. Beetles can no longer affect pollination once pollen shed has ended and silks have turned brown.

For more information, including rates and restrictions of recommended insecticides for adult corn rootworm control, refer to *EC90-1509, 1990 Insect Management Guide for Nebraska Corn and Sorghum,* available at your local University of Nebraska Extension office.

Bob Wright

Watch for Western Bean Cutworm Eggs

Western bean cutworm eggs are being laid in corn now. This pest is usually confined to sandy soils in northeast Nebraska, along the Platte River Valley from Grand Island to the Panhandle, and southwestern counties. Western bean cutworm moths prefer to lay eggs on corn in the late whorl stage. Individual eggs are about the size of a common pinhead and are laid in masses ranging from 5 to 200 eggs. The eggs are initially round and pearly white, but when ready to hatch (after four to seven days), they become dark blue or black. When eggs hatch before tasseling, newly-hatched worms migrate to the developing tassel to feed. After tasseling and pollen-shed, larvae move to leaf axils and later to the ear where they feed on emerging silks. Once the ear has formed, worms enter the ear through the silk channels or through holes cut in husks and feed on developing kernels.

Treatment is justified if 8% of the plants have eggs on leaves and/or small larvae in the tassels and the crop is at least 95% tasseled. Timing of the insecticide application is important. If the tassel has emerged from the whorl, best results are obtained when treatment occurs at 70-90% egg hatch. Control of western bean cutworms will be poor once worms have entered the developing ear, so scout fields often to avoid missing the early stages of infestation.

Many products labeled for control have been shown to increase the risk of spider mite infestations later in the season. If spider mites are present, even in small numbers, select an insecticide such as Furadan 4F or Lorsban 4E, which is less likely to stimulate increases in mite reproduction. For more information refer to *EC90-1509, 1990 Insect Management Guide for Corn and Sorghum,* and *NebGuide G75-50, Spider Mites in Corn.*

Bob Wright

Control Volunteer Wheat to Reduce Pests

Volunteer wheat serves as an important key to the survival of several insect pests, including Russian wheat aphids, wheat curl mites (the vector of wheat streak mosaic virus) and Hessian flies. Controlling volunteer wheat will help reduce these pests because it provides them with an ideal food source and allows them to survive in high numbers until fall-planted wheat emerges. For adequate control, there should be at least a two- to three-week, wheat-free period between harvest and emergence of fall wheat.

Bob Wright

Potatoes Subject to A Variety of Pests

Several potato pests are now abundant in home vegetable gardens across the state. Many insects found in potatoes also occur on potato-related crops such as tomatoes, eggplants and peppers. Chief among these is the **Colorado potato beetle** *(see drawing)*. The adult is yellow with black stripes and is about 3/8 inch long. At this time of year, the swollen, shiny, pink-red larvae with black markings are reaching maturity and, because they are large and feed in groups, are capable of consuming large amounts of foliage in a short time. Damage appears as large holes chewed in the leaves. Colorado potato beetle larvae soon will be pupating in the soil. Later this summer, adults will emerge and begin a second generation as they deposit clusters of orange-yellow eggs on the undersides of leaves. For non-chemical control, simply pick beetles off the plants and crush egg masses.

La rvae **Adult**

Colorado potato beetle

Flea beetles also are damaging potato and eggplant leaves by chewing small pits or holes in foliage. Eventually, these may cover the entire leaf, producing a lacy appearance. Flea beetles are black, about 1/8 inch long, and jump when disturbed. Larvae feed on underground plant parts and frequently scar surfaces of potato tubers. The **potato leafhopper** is another important pest that is quite abundant this season. Each spring, the small, greenish, wedge-shaped adults migrate to Nebraska from the south. Slender white eggs are laid inside plant stems and leaf veins. Newly hatched nymphs are pale green and wingless, but gradually transform into winged adults. Feeding occurs on the undersides of leaves and causes leaves to yellow, curl and turn brown at the edges. New growth becomes distorted and stunted. There are several overlapping generations each season. Liquid sprays of carbaryl (Sevin), diazinon or malathion are appropriate for control. When treating for leafhoppers, be sure to direct spray under leaves. Carefully follow all label directions and observe the waiting period between application and harvest.

Fred Baxendale

Potato Leafhoppers Attacking Alfalfa

Many alfalfa fields in eastern Nebraska have been severely damaged by potato leafhoppers. It seems newly-established fields have been more susceptible, although we have received several calls regarding two- or three-year-old stands not growing back after second cutting. When damage is severe and potato leafhopper numbers are high, new stands may be killed entirely and well established stands may lose an entire cutting. This insect will produce one or more generations of young yet this season, so we can not expect it to go away until late August or September.

I discussed the damage symptoms, sampling procedures, and management strategies for the potato leafhopper on page 89, issue 90-14 of the IPW News. For more information, refer to *EC90-1511, 1990 Insect Management Guide for Alfalfa, Soybeans, Wheat, Range and Pasture.*

Steve Danielson

Mimosa Webworm Damage Mostly Aesthetic

Although mimosa webworm populations generally have been low the past two years, localized heavy infestations still occur. Look for clusters of leaves webbed together by pale green or brownish caterpillars about 0.5 inch long and having five thin white stripes. Second generation caterpillar populations can defoliate a tree, so treat before they become damaging. The same chemicals used against fall webworms can be applied, but since damage is mostly aesthetic and has little effect on tree health, light infestations do not require treatment.

Ackland Jones

Stable Flies a Major Nuisance This Year

Stable flies are a serious pest of both feedlot and range cattle (and humans) in Nebraska this year. The abundant moisture early in the season provided excellent breeding material for stable flies. These flies are blood-feeders and pierce the skin around the lower half of the legs (particularly the front legs of cattle and horses) to obtain a blood meal.

The stable fly is usually a pest around confined cattle (feedlots and dairies); but this year, they are also pests of pasture cattle. For short term relief, pasture cattle and horses can be treated with insecticide sprays. Fenvalerate (Ectrin), malathion, methoxychlor, permethrin (Ectiban), Dioxathion (Delnav), coumaphos (Co-Ral) and stirofos (Rabon) can be used to spray beef cattle. Co-Ral, Delnav, and Ectrin can be used on dairy cattle; permethrin (Ectiban) can be applied after the animal is milked. Sprays will provide relief for only a few days.

The best long-term solution is to find the fly breeding areas and destroy them by removal or treatment with an insecticide. Stable flies breed in decaying, wet organic matter. This is most often animal manure mixed with soil and moisture, but it also can be spilled feeds, grass clippings, and any other decaying vegetation, such as grass around ponds, streams, and lakes.

The recent hot, dry weather should be drying up fly breeding areas and will bring relief to most areas except in flooded areas of Nebraska.

In feedlots and dairies, fly breeding occurs primarily behind the feeding apron, in drainage areas, along mounds, under fences, and in the debris basins leading to holding ponds. If these areas are too wet to clean, treat them with Rabon insecticide. Carefully read the labels of any insecticides to be used and strictly observe the rates, restrictions, and warnings listed. For more information on controlling livestock insects, see the publication *EC89-1550: Nebraska Management Guide for Control of Arthropod Pests of Livestock and Horses.* It is available from any University of Nebraska Extension Office.

Horn flies, face flies, mosquitoes, horse flies, and deer flies also may be pests of pasture cattle. Ear tags impregnated with insecticides, dust bags, oilers, and sprays provide some control. However, this year the stable fly is causing cattle to bunch, with each animal trying to protect its front legs.

In feedlots and dairies, mist blowers, hydraulic sprayers (set to deliver a mist), and aircraft can be used to spray flies. These area or knockdown sprays (Vapona, Dibrom, Ectrin and Ectiban) are short residual sprays which kill flies they contact; however, they break down too rapidly to provide residual control.

Fly resting areas along shady sides of buildings, windbreaks, and feedbunks can be treated with residual sprays like Rabon, Ectrin, Ectiban, methoxychlor and Cygon. The flies absorb enough insecticide while resting to kill them.

Jack Campbell

Environmental Programs

Study Finds Little Leaching of Lawn Care Chemicals

In a recent study at Ohio State University, two scientists found there is little or no downward movement of pesticides applied to lawns and golf courses. In two experiments, six preemergent herbicides and nine insecticides were applied to turfgrass, with and without a thatch layer. Soil cores were removed and analyzed for pesticides for several months after application.

The scientists found that almost all pesticide residues remained in the thatch, if thatch was present. If not present, most residues stayed in the top inch of soil. Their findings could help allay concern that lawn care chemicals are leaching into soil and contaminating groundwater.

Larry Schulze
Extension Pesticide Coordinator

PLANT DISEASE

Hot Weather Leading to Turf Problems

Brown Patch: Many home lawns and golf course turfs are showing injury from brown patch. Symptoms on lower-cut golf greens and tees are roughly circular areas that appear dark brown. The patches range in size from a few centimeters to a meter in diameter. The grass within these rings is water soaked and wilted. During the early morning hours, a smoke ring often appears at the edge of the patch. This dark-gray ring is composed of wilted grass plants and mycelium of *Rhizoctonia solani*, the causal fungus. On higher-cut home lawns and golf fairways, infected turf shows patches of brown or straw-colored plants in a circular pattern. The diseased area may be matted in relation to surrounding turf. The disease will be more severe where excessive nitrogen has been applied. At this time, control is best accomplished with fungicide application. On home lawns a good treatment method is to apply a granular product with a drop-type spreader. Repeat applications will depend on weather conditions and disease severity.

Summer Patch: This destructive disease is causing considerable injury to home lawns and is particularly damaging in stressed sites. Disease symptoms are circular areas of dead, straw-colored turf with tufts of green grass in the center. As these patches become more numerous, large areas of turf are damaged. Control in midsummer is difficult. Drenching the area with Tersan 1991 (benomyl) will limit further disease development, but the injured area will not recover until fall.

Heat Injury: In addition to brown patch and summer patch, many home lawns are showing injury from heat and localized dry spots. Lawns that show streaks conforming to mower wheel tracks were injured by mowing in midday when the temperature was above 90 degrees. When it is hot, mow in the early morning or late evening after the turf has been irrigated with at least an inch of water. Syringing the turf in midafternoon will help reduce heat stress because of its cooling effect on the grass plants. It also will help restrict symptom development of summer patch.

John Watkins

Ash Decline a Mystery, But Homeowners Can Aid Recovery

Several years ago I began to notice a problem developing in quite a few neighborhood ash trees that was difficult to explain on the basis of known pathogenic causes. Briefly, what I was seeing were individual landscape and parkway-planted trees whose leaves would suddenly wilt, show signs of severe leaf scorch, and drop in late June or early July. Large scaffold branches through the center of the canopy would die within several months, and the trees would set an abnormally heavy amount of seeds (if not a seedless selection). Generally, such trees were 15 to 25 years old, located in well-suited sites for normal growth and development, and appeared to be well maintained. Further, attempts to recover pathogenic microorganisms proved fruitless; insect colonization was not overly heavy, and there was little or no indication of acute herbicide exposure.

Last year I made on-site visits to 15 or 20 urban and rural homes within a 40-mile radius of Lincoln to examine the "ash decline" problem, with the hopes of identifying a probable cause and to offer possible methods for its resolution. I've re-visited about half of these trees this year: one or two have completely recovered, others appear to be improving; but unfortunately, a couple have died. Apparently, if not too extensive, the condition appears to be reversible.

I still have not identified any single and consistent host/pest interaction. I suspect, as do others in neighboring midwestern states, that the condition is the result of multiple and accumulative causes — extended drought the past several years, winter stresses, excessive evapotranspiration rates, minor organismal invasion, chronic effects of weed control products causing dysfunctional root absorption, etc.

What can be done to assist in an affected tree's recovery? Here are our best suggestions:

1. Carefully prune out dead limbs and branches, paying particular attention to those throughout the center of the tree. Pruning can be done now, later this fall or winter, or early next spring.
2. Water the area around affected trees thoroughly prior to the onset of dormancy this fall. Extend well beyond the dripline.

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3. Apply nitrogen fertilizer over the root zone next spring at the time of leaf expansion. Base the rate on the root zone area (two to three pounds of actual nitrogen per 1,000 square feet).

Remember, a tree's root system commonly extends two to four times the distance from the trunk to the dripline of the canopy. About 90 percent of the "feeder" roots are located in the upper 12 inches of soil. This suggests that, when watering or fertilizing, a much larger area should be treated around affected trees than was once believed necessary.

David S. Wysong

For More Information

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

RP 217: Understanding and Using Basis for Livestock. This Fact Sheet will assist a livestock producer or feeder in understanding the importance of the basis when forward pricing livestock.

G76-301: How to Tell Corn, Sorghum Maturity. This NebGuide explains how producers can identify a black layer at the point where the corn or sorghum kernel attaches to the plant to determine crop maturity.

These publications 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 ACB, University of Nebraska, Lincoln, NE 68583-0918.

IPW News Contributors

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