6-7-1991

INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 91-11] [June 7, 1991]

Alex Martin
University of Nebraska - Lincoln, amartin2@unl.edu

Bob N. Stougarrd
Extension Weed Specialist, University of Nebraska-Lincoln

Lisa Brown Jasa
University of Nebraska-Lincoln, ljasa@unlnotes.unl.edu

Insect Science Plant Disease Weed Science NEWS

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

No. 91-11 June 7, 1991

In this issue

PLANT DISEASE

Wheat diseases developing rapidly; some cases severe

An evaluation of a fungicide trial in south central Nebraska showed a significant increase in leaf disease activity the last two weeks. Tan spot and Septoria leaf blotch were severe on lower leaves and light to moderate on the flag leaf. Leaf rust severity was between 5 and 10 percent on the flag leaf, but is expected to increase dramatically after last week's rain. Susceptible cultivars not treated with a fungicide will probably be heavily rusted by mid-June. With flag leaves already showing disease symptoms, we are essentially beyond the window for effective fungicide treatment.

Growers should watch for symptoms of scab. This disease was severe in the early 1980s and has continued to appear sporadically since then. This year scab has been seen in several states surrounding Nebraska. Symptoms are a partial or complete blighting of the head. Often the scab fungus will produce a salmon-pinkish growth on infected florets. Infection occurs during extended periods of wet, cloudy weather while plants are flowering. We have not had any reports of scab in Nebraska, but weather conditions have certainly been conducive to its development.

John Watkins

Alfalfa leaf spots appearing

A survey of several alfalfa fields in central Nebraska showed spring black stem and common leaf spot were developing rapidly. The wet weather has delayed harvest which compounds the leaf and stem disease problem.

Spring black stem causes darkening of stems and produces irregularly-shaped spots on leaves. Common leaf spot is a small, circular leaf spot. Together they will cause yellowing and leaf drop. This is not uncommon on lower leaves, but when harvest is delayed, early leaf loss can be severe and cause 40 to 60 percent defoliation. Leaf loss will continue in the windrows. Early defoliation seriously reduces forage quality. The only defense for growers is to scout regularly and harvest early, if necessary.

John Watkins

Holcus leaf spot found in corn seedlings

The bacterial disease Holcus leaf spot is appearing on the leaves of young corn seedlings in many fields throughout east central Nebraska. On a recent trip between Lincoln, Blair and Genoa, I examined seedlings in a number of corn fields for emergence and/or leaf disease problems. Most seedlings were at the three- to five-leaf development stage.

The disease, caused by *Pseudomonas syringae*, appears as round to elliptical spots ranging in size from about 1/32 to 1/4 inch in diameter. At first the spots are dark green and water-soaked; later they become creamy-white to tan and eventually dry and turn brown, often with reddish to brown margins. The larger, more mature spots may be surrounded by a yellowish halo.

The bacteria overwinter in crop residue and invade the leaves through natural openings called stomates or through small puncture wounds in the epidermis. Invasion commonly occurs from rain splash of soil and plant debris onto young leaves during wind-driven, stormy weather. Disease symptoms commonly follow such storms by a week to 10 days. Warm (70°F to 85°F), rainy and windy weather, especially early in the season, favors disease development.

Fortunately, Holcus spot rarely causes economic losses through reduced yields. Although lower leaves may become severely spotted and eventually die, corn plants generally "outgrow" the disease. Mid and upper leaves are less often exposed to the bacterium due to their increased distance from the soil and because of less frequent weather patterns that favor disease spread as the season progresses.

David Wysong

Pond conditions contribute to Crazy Top in corn, sorghum

Recent heavy rains over parts of Nebraska have created sizeable ponds in low areas and terraces of many corn and sorghum fields. Such flooded conditions shortly after planting or before plants are in the four- to six-leaf stage are favorable for host infection by the downy mildew fungus that causes "crazy top."

Complete soil saturation for 24 to 48 hours allows ingress of the fungus into seedling plant tissues. Once an infection is established, the fungus develops systemically and becomes associated with the meristematic tissues. Disease symptoms are expressed somewhat later in the growing season.

Excessive tillering (6 to 10 tillers per plant) and rolling and twisting of the upper leaves appears first. In corn, the most characteristic symptom is the partial or complete proliferation of the tassel, which continues until the tassel resembles a mass of leafy structures. This leafy mass of tissue also may replace the ears (corn) or heads (sorghum). Leaves elsewhere on infected plants may be narrow, straplike, and leathery. Stunting and chlorotic striping of leaves are other common symptoms.

Usually the disease is confined to small areas that closely conform to earlier ponded conditions so overall yield losses are minimal. There are no seed treatments or other chemical controls for the disease. Improving soil drainage or avoiding low, wet spots will minimize disease incidence and severity.

David Wysong

IPW News

The Insect Science, Plant Disease and Weed Science News is published throughout the growing season by the University of Nebraska Department of Agricultural Communications, 108 Agricultural Communications Bldg., UNL, Lincoln, NE 68583-0918. To order a subscription or to change your address, write to IPW News, 108 Agricultural Communications Bldg. or call (402) 472-7981.

Lisa Brown Jasa, Editor

For more information about a particular subject, write the authors at the addresses below:

UNL Department of Entomology
202 Plant Industry Bldg.
Lincoln, NE 68583-0816

UNL Department of Plant Pathology
406 Plant Science Bldg.
Lincoln, NE 68583-0722

UNL Weed Science
Department of Agronomy
279 Plant Science Bldg.
Lincoln, NE 68583-0915

INSECT SCIENCE

Scout for pests when alfalfa regrowth is slow

Alfalfa growers should scout their fields after the first cutting for possible pest problems. One problem common in the eastern half of the state in recent years is delayed regrowth due to adult alfalfa and clover leaf weevil feeding. This problem may not be as severe this season due to a recent decline in weevil larval numbers, but field scouting after harvest is the only way to be sure of what is happening in your location. Scouting should be done every two or three days after cutting. Examine the crowns in several locations in each field for new shoots and buds. You should be concerned if new growth is not present within a few days or if the new growth is damaged. Be certain that insects are the cause of the problem by searching the crowns and nearby debris for their presence. Use the chart below to help determine when an insecticide treatment is necessary.

Potato leafhopper numbers are quite high in some eastern Nebraska alfalfa fields. Damage due to this pest is most likely during the second or third crop growing periods in Nebraska. Research and past experience have shown that once damage appears to the crop (i.e. discolored and stunted plants), it really is too late to manage this pest. The only solution at this point is to cut off the damaged plants to encourage normal regrowth. If you wish to try to manage the potato leafhopper, weekly sweep sampling is necessary to determine the infestation levels in each field. The following guidelines may be helpful in determining when to consider treatment:

Average height of alfalfa (inches)	*Average number of potato leafhoppers per sweep of a 15" diameter insect net*
0-3	0.2
3-6	0.5
6-12	1.0
12 or more*	1.5

If alfalfa exceeds 12 inches or is approaching bloom, consider an early harvest rather than treatment.

For more information, refer to the Extension publication, EC91-1511, *1991 Insect Management Guide for Alfalfa, Soybeans, Wheat, Range and Pasture.*

Steve Danielson

Alfalfa Stubble Threshold Calculation Chart

Factors	*Example*	*Your Field*
A. Insecticide plus application cost (dollars per acre)	$7.00	
B. Value of hay (dollars per ton)	$100.00	
C. Loss factor (1st-bloom harvest = 0.0198; 28-day harvest = 0.0345)	0.0198	
D. Days of **complete** defoliation that can be tolerated	3.5	

To estimate D, multiply B times C and divide into A. The above example is then calculated as follows: D = A/(BxC) = 7.00/ (100x0.0198) = 7.00/1.98 = 3.5 days.

Armyworms move into southeast Nebraska

Damaging infestations of armyworms have been reported in grasses and wheat in southeast Nebraska, Kansas and Missouri. Although there is little information available to guide us in this area, it is likely that high enough infestations could cause economic losses to forage and grain crops. Some entomologists in surrounding states are suggesting that insecticide treatments be considered when more than four armyworms are present per square foot in pasture grasses and wheat. Insecticides are registered for this use in these commodities; however, restrictions may apply concerning harvest and grazing after application. Please read all pertinent label instructions before using any insecticide.

Steve Danielson

Chinch bugs attacking thin wheat stands

Alert growers have observed adult and small immature chinch bugs in their wheat, especially in thin stands or thin areas within fields. In some of these spots, the wheat has been stunted and damaged significantly from chinch bug feeding.

Chinch bugs migrated into wheat and other cool-season grasses during several very warm days in early April. Chinch bugs are less likely to be in dense wheat stands following the recent wet weather. They are concentrated in thin areas and have even moved into newly planted, more sparse stands of row crops.

Adult chinch bug infestations that are serious enough to cause economic damage in seedling corn have been reported in Otoe, Burt, Dodge, and Washington counties. We have also seen thin stands of smooth brome grass infested with chinch bugs. Thus far, we have not had any reports of seedling sorghum being infested with adult chinch bugs which have flown into these fields, but growers should inspect seedling sorghum for chinch bugs. Reports as of June 3 of chinch bug infestations are from counties north of the geographical area most severely attacked in 1990 (see *IPW News*, 91-4, pages 19-20). This is a pattern that seems to be repeating itself; last year we saw severe damage in many areas north and west from the problem counties of 1989. Based on these reports, we might also see problems in other counties north and west of the 1990 problem area. Growers in counties that had problems with chinch bugs in 1989 or 1990 should be aware of the possibility of infestations.

If growers have a thin stand of wheat infested with chinch bugs, they should carefully consider their management strategies. Some growers may want to spray these thin stands of wheat by air before harvest. In a study we conducted in 1990, a field of sorghum adjacent to a thin stand of heavily infested wheat was not protected by spraying the wheat by air with parathion or Sevin. The aerial sprays did not control immature chinch bugs because they feed in a protected area between the leaf sheath and the stalk. Instead of spraying wheat, we recommend planting a nonsusceptible crop, like soybeans, adjacent to infested wheat fields. Wheat that has a dense stand throughout the field may not be infested with chinch bugs to any great extent. Growers should carefully examine these fields for chinch bugs before making management decisions.

Barb Spike, Research Associate, Entomology

Corn rootworm egg hatch earlier than usual

Corn rootworm larvae were found May 31 at UNL's Agricultural Research and Development Center near Mead, according to Lance Meinke, assistant entomology professor. This is earlier than the long-term average hatch date at Mead of June 10. The recent warm temperatures have greatly increased soil temperatures. Rootworm egg hatch may be somewhat later in northern Nebraska or at higher elevations, but it probably will begin in the first week of June. Cultivation applications of soil insecticides or chemigation treatments may need to be applied somewhat earlier this year due to the earlier egg hatch. See the Extension publication, EC 91-1509, the *1991 Insect Management Guide for Corn and Sorghum*, for a complete list of products labelled for corn rootworm control at cultivation or by chemigation.

To determine if rootworm eggs have hatched and how many larvae are present, dig a 7-inch cube of soil centered on the corn plant. Sample two plants at each of five locations in a field. Carefully search through the soil and plant roots for the larvae. Sorting the sample over a piece of black plastic or tarp provides a useful contrast to help detect the small rootworm larvae.

There are three larval instars. The first instars are difficult to find because of their small size. Usually the first detected rootworms are second instars. Corn rootworm larvae are slender, cream colored, with brown heads and a dark plate on the top side of the tail, giving them a double-headed appearance. Mature larvae are 1/2 inch long.

Bob Wright

ECB moth flight begins

Andy Christiansen, extension agent in Aurora, captured European corn borer moths in a black light trap as early as May 12 this year. Other locations also have reported that activity of first generation moths is increasing.

Corn borer moths are attracted to the taller corn in an area, but they will lay eggs on shorter corn. However, borer survival is greatly reduced on small corn plants (less than 16-inch extended leaf height) due to the presence of a chemical, DIMBOA. The concentration of this chemical decreases within a plant as it grows larger. A greater proportion of larvae are able to survive on mid- to late-whorl stage corn (22-36 inch extended leaf height). Scouting for first generation corn borers should begin when plants reach a 17-inch extended leaf height. Scouting will be discussed fully in next week's *IPW News*.

Bob Wright

Training offered for European corn borer software package

Training sessions on the Nebraska European Corn Borer Management computer program have been scheduled for June 17 in Lincoln and June 18 in Neligh. Sessions at other locations will be announced later. Both sessions will be 1-3 p.m. The Lincoln session will be in Room A222 of the Animal Sciences Building on the UNL East Campus. The Neligh session will be at the Antelope County Extension office. Sessions will consist of lecture and demonstration and are offered for a $5 registration fee.

Computer programs will not be sold at the sessions, but can be ordered from the UNL Department of Agricultural Communications. To order, send a check for $71.23 payable to the University of Nebraska to ECB Management Software, 108 ACB, UNL, Lincoln NE 68583-0918. Request either a 5 1/4 or 3 1/2 inch computer disk.

Bob Wright

WEED SCIENCE

Tackle weeds in soybeans postemergence

To save time during this rainy season, some growers did not apply a herbicide when planting soybeans. Recent weather has been ideal for weed growth, and now many weeds are reaching the stage when they should be controlled. Weeds between rows can be controlled with a cultivator, but weeds within the row are best controlled with herbicides.

Success with postemergence herbicides hinges on timing the application. Timing depends more on the weed growth stage than on the crop stage; small weeds are more readily controlled than large ones. Apply herbicides when most susceptible weeds are less than 4 inches tall.

The spectrum of weeds controlled varies with herbicide. Basagran is effective against cocklebur, smartweed, sunflower, and velvetleaf. Blazer controls black nightshade, pigweed, and smartweed. A combination of Basagran and Blazer often are used for broader spectrum control. Galaxy is a premix combination of Basagran and Blazer. Classic is effective against cocklebur, smartweed, sunflower, and provides pigweed suppression. Pinnacle's weed spectrum is similar to Classic except it is more effective against pigweed and has less soil persistence than Classic. Classic and Pinnacle also control velvetleaf when a nitrogen solution is used as an additive. Scepter controls cocklebur and pigweed. Pursuit is effective against most annual broadleaf weeds and many grasses, including shattercane. Classic, Pursuit, and Scepter have crop rotation restrictions — consult the label. Assure, Fusilade, and Poast have excellent crop safety; soybean injury is not a concern with these herbicides.

Treat annual grasses before they tiller. Tillering often occurs when grasses are 3 to 4 inches tall. Grasses treated after tillering usually recover and regrow from the crown. Volunteer corn and shattercane are very susceptible to these herbicides. Good control can be achieved of plants up to 18 inches tall.

Due to the abundant soil moisture and over-cast conditions, the weeds haven't hardened-off, making them more susceptible to postemergence herbicide treatments. These conditions also apply to the soybean crop. Be cautious when selecting use rates and spray additives.

Spray additives generally are required with these herbicides (*see page 66*). Additives include crop oil concentrate, nonionic surfactants, fertilizer solutions, and ammonium sulfate. Each herbicide has specific additive requirements — consult the label for details. In some cases lesser herbicide rates are required with certain additives. Nitrogen solution (28-0-0) has largely replaced crop oil concentrate as an additive with Basagran and improves Classic, Pinnacle and Pursuit activity against velvetleaf. Dash, a new additive for Poast, enhances activity and eliminates the need for increasing the Poast rate when tank mixing with Basagran.

Alex Martin and Bob Stougaard

Accent, Beacon approved for aerial application

Gov. Ben Nelson on May 31 approved a crisis exemption providing a 15-day period for aerial application of Accent and Beacon to control shattercane and other grassy weeds in cornfields.

Both Accent and Beacon are registered by the EPA for ground application in controlling shattercane, but extremely wet conditions, especially in southcentral Nebraska, are preventing normal ground application by farmers. Applicators are reminded to use care when spraying Accent or Beacon to prevent any drift to nearby sorghum and alfalfa fields.

Alex Martin

Additives can aid in herbicide management

Spray additives should be considered management tools to help obtain the greatest return for the dollar for postemergence weed control. However, it may be difficult to select the right additive due to the wide variety of additives available.

Postemergence herbicide additives fall into three broad categories: surfactants, oils and oil concentrates, and fertilizers. Surfactants (also known as wetting agents or spreaders) are chemicals that reduce the surface tension of spray solutions so spray droplets spread out to cover a larger surface area. Nonionic surfactants are the most widely used of the surfactant family of herbicide additives. Application rates usually range from one to four pints per 100 gallons of spray solution. Oil concentrates consist of either petroleum based or crop based oils. Crop oil concentrates consist of either non phytotoxic petroleum or crop based oil containing 15-20% emulsifier. Recently the methylated seed oils, Scoil and Sunit II, have been developed as herbicide additives. Oils and oil concentrates mainly aid in the penetration of herbicides through plant leaf surfaces, but also serve as spreaders. Application rate for crop oil concentrates is usually 1 quart per acre.

Fertilizer additives, though not new, have become more popular in recent years. Their function as an additive is not completely understood, although we do know they aid in herbicide penetration of plant leaf surfaces. There is strong evidence that fertilizers containing ammonium tend to offer the most in enhancing herbicide activity. Fertilizers like 28% UAN, 10-34-0, ammonium sulfate and ammonium nitrate perform similarly. Application rates for liquid fertilizers range from 1 quart to 1 gallon per acre and granular fertilizer rates range from 1.5 pounds to 4 pounds per acre.

Performance data for some major additivies follows:

Accent and Beacon: Nonionic Surfactant + 28% UAN = Scoil = Sunit II > COC > nonionic surfactant.

Pursuit, Classic, Pinnacle: Nonionic Surfactant + 28% UAN = Scoil = Sunit II > COC > nonionic surfactant.

Basagran or Basagran + Blazer: 28% UAN = Nonionic surfactant +28% UAN > COC = Scoil and Sunit

Poast, Assure, and Fusilade 2000: Scoil = Sunit II > COC = nonionic surfactant.

Be sure you choose the right additive and read and follow all label directions to insure maximum effectiveness.

Jeff Brennan, Graduate Assistant

2,4-D may be the answer in weedy winter wheat fields

Weeds have managed to get an upper hand in many winter wheat fields this year. Dry, windy conditions last winter reduced stands in many areas. In addition, the wet and windy spring has been conducive to weed growth, but not to herbicide application. Wheat in many areas was already jointing before annual weeds began appearing. This greatly diminished the available herbicide options.

If you have a winter wheat field with weed populations that may interfere with wheat harvest, consider applying 2,4-D low volatile ester as a harvest aid treatment. Use it at a rate of 1 quart per acre (4 pounds active ingredient per gallon) to winter wheat in the hard dough stage. Earlier applications of 2,4-D may cause serious injury to wheat. The 2,4-D must be applied at least seven days before harvest. Not all 2,4-D brands are labelled for a harvest aid treatment, so be sure to check the label before applying.

Drew Lyon
Extension Dryland Crops Specialist

Injured crops require care with postemergence herbicides

Producers run a greater than normal crop injury risk when applying postemergence herbicides to crops damaged by wind, hail, and blowing sand and soil. The bruised and damaged tissue permits increased herbicide uptake. Also, with some herbicides, there is decreased detoxification which increases injury risk. Waiting several days for the crop to recover from storm damage reduces the risk of herbicide injury. However, don't wait too long because the weeds also will be growing.

Herbicides posing the greatest risk to corn and sorghum include 2,4-D, Banvel, Bladex, and atrazine. Atrazine can be used postemergence on corn that is not severely damaged, but not on sorghum. Basagran and Laddok should be fairly safe on corn and sorghum. Buctril and Buctril-Atrazine do not pose an unusual risk on storm damaged crops. Storm damaged soybeans should not be treated with Basagran, Blazer, Cobra, Classic, Galaxy, Pinnacle or Pursuit until they recover. Assure, Fusilade and Poast are relatively safe.

Alex Martin and Bob Stougaard

Weed tour June 17-20

The Nebraska Weed Tour begins June 17 with stops at Concord and Mead. The tour continues at Lincoln and Clay Center on June 18 and North Platte and Sidney June 19. The tour concludes on June 20 with stops at Scottsbluff and Torrington, Wy. See page 60 of the *IPW News* 91-12 for itinerary details.