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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 90-14] [June 29, 1990]

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Insect Plant Disease Weed Science NEWS

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No. 90-14 June 29, 1990

In This Issue

PLANT DISEASE

Wheat Leaf Rust Causing Early Flag Leaf Loss

A recent survey of wheat in eastern, south central, and west central Nebraska showed leaf rust to be epidemic. Rust severity on susceptible varieties ranged from 40-95%. The lower severities are in extreme west central Nebraska with severities reaching 95% in south central and eastern Nebraska. The heavy rusting is causing early loss of flag leaves and will probably affect yields and test weights. Fields treated with fungicide in early May are showing a delayed but fairly significant level of leaf rust.

John E. Watkins

Wheat Scab Discovered in South Central Nebraska

Wheat scab (also known as Fusarium head blight) has developed in some fields in south central Nebraska, however the incidence and severity is not anywhere near the 1982 level. Apparently, conditions were favorable for infection at flowering time. We evaluated 30 varieties for scab at test plots at the South Central Research and Extension Center Research Farm near Clay Center The earlier maturing varieties appear to have the highest incidence. However, most varieties have only trace amounts of scab or it is absent. Scab can be easily recognized by the presence of bleached light tan to white spikelets. A pink or salmon color usually develops at the base of the infected spikelet and may extend along the crease of the glumes. Severely infected florets are sterile; less severely infected florets will have shriveled pinkish-colored kernels.

Ben Doupnik

After the Recent Storms

Forecast Ideal For Diseases

In Corn: Holcus Spot and Goss's Wilt, Blight

Most bacterial diseases in field crops are associated with stormy, turbulent, wind-driven rains followed by prolonged periods of moderate to warm temperatures and high relative humidities (frequent dews, light showers, etc.). Holcus spot and Goss's bacterial wilt and blight are two such diseases that producers need to watch for in their corn fields.

Holcus spot, a leaf-spotting bacterial disease of young corn plants, commonly follows the rainstorms that thunder across the Plains by seven to 10 days. Small, round spots about 0.25 to 0.50 inch in diameter appear toward the tips of lower leaves. At first the spots are dark-green and water-soaked; later they become creamy-white to tan and may resemble injury from contact herbicides. Older, more mature lesions turn brown and may be surrounded by a yellow halo.

Although the disease can figuratively 'explode' in fields subjected to turbulent weather, it rarely causes economic yield losses. Good weed control (especially in grassy areas adjacent to fields), and residue incorporation will tend to reduce disease incidence in next year's crop.

Goss's bacterial wilt and blight is another bacterial corn disease strongly influenced by weather. Even though Nebraska farmers have not been plagued by this disease for several years, do not be misled into thinking the causal pathogen has disappeared. Disease potential still exists; if susceptible hybrids are grown and if thunderstorm fronts are accompanied by hail and/or strong winds, the bacterial disease is likely to reappear.

As its common name implies, the disease exhibits two distinct phases of development: a leaf lesion phase that results in reduced photosynthetic potential (blight), and/or systemic infection of the stalk expressed as a wilt.

Leaf lesions initially are seen as dark, water-soaked streaks that develop parallel to the leaf veins. Droplets of bacterial exudate commonly appear near or within developing lesions. These droplets crystallize on the leaf surface and become shiny as they dry. As lesions enlarge and become more numerous, leaves become blighted and dry up.

Early symptoms of systemic infections are small, yellow-orange or tan dots (in cross section) or streaks (longitudinal section) when stalks are cut. These signal infected vascular bundles. More advanced symptoms include stunted growth, wilting leaves, a dark-brown, foul-smelling soft rot of the central stem, and finally collapse and death of infected plants.

The use of resistant varieties, crop rotation, and the destruction of infected residue can minimize the disease.

David S. Wysong

In Soybeans: Bacterial Blight

As in corn, wind-driven rainstorms coupled with moderate temperatures and extended periods of heavy dews and high humidities tend to favor the onset and development of bacterial diseases in soybeans. The most common one in Nebraska is bacterial blight.

Early symptoms include small, angular, translucent, water-soaked, yellow to light-brown spots that usually develop on lower leaves first. The centers soon dry out, turn reddish brown to black, and are surrounded by a water-soaked margin bordered by a yellowish-green halo. The angular lesions enlarge and merge to produce large, irregular, dead areas. The centers of older lesions frequently drop out or tear away, and thus leaves appear ragged, especially after strong winds and beating rains.

The bacterium overwinters in surface crop residue and seeds. Seeds can be infected through the pods during the growing season, or they may be invaded during harvest. Since the bacterium is seed-borne, fields with a high incidence of bacterial blight would not be a suitable seed source for next year's planting.

David S. Wysong

Barberry Shrubs Show Verticillium Wilt Symptoms

Numerous samples of barberry have been sent to the Plant Disease Diagnostic Clinic. These samples all have similar symptoms of leaves turning red or brown, wilting and shriveling and branches appearing to die one-by-one. These symptoms are characteristic of a disease called Verticillium wilt. Verticillium wilt is caused by a soil-inhabiting fungus. The fungus infects the roots or enters through wounds. As the fungus moves up through the plant in the vascular (water-conducting} tissues, leaves of infected branches begin to wilt. Infected vascular tissues may become discolored giving the tissue just beneath the bark a brown-streaked appearance.

There are no chemical controls for Verticillium wilt. Some plants respond fairly well to a combination of pruning and cultural practices for several years. The infection is not eradicated, but it is slowed. Remove severely infected plants entirely. Prune out dead branches from less seriously affected plants. Water and fertilize the plants to stimulate new growth. Do not fertilize after mid-July. Water deeply but not too often (once or twice a month is adequate). If it becomes necessary to replace the plants, select a verticillium-resistant plant.

Luanne V. Coziahr

Yellow Corn Samples Negative for Viruses

Leaves from yellow corn plants were collected from five fields and assayed for virus by Dr. Les Lane using gel electrophoresis (see page 74, June 15, 1990 IPW News). All samples were negative; thus, eliminating viruses as the cause of the problem. We believe the yellow plants were caused by the extended wet, cool weather conditions. The recent warmer weather has greatly improved growing conditions, and the yellow corn symptoms have disappeared.

Ben Doupnik, Jr.

Good Samples, Notes Essential to Diagnoses

The Plant Disease Diagnostic Clinic has been very busy lately. The abundant rains have encouraged the development of diseases, and we are still seeing environmental damage due to drought and winter injury on many trees, shrubs, and lawns. Please be patient. We try to return responses as soon as possible.

Remember that good samples and adequate information are critical to an accurate diagnosis. We have received samples with little or no information. Sometimes the situation may have been discussed by phone and we may have requested a sample. Please take a moment to note with whom you discussed the sample and to jot down information discussed. There are several of us who answer your phone calls in Extension Plant Pathology and the person you talked with originally may not be the person examining the sample. Also, after several hundred samples and calls, it is difficult to recall the specifics of each sample discussed accurately. Or, am I getting old!

Luanne V. Coziahr

WEED SCIENCE

Attack Perennial Weeds at Early Flower Stage

Normally, late June is the best time to treat broom snakeweed, vervain, goldenrod, sagebrush, snow-on-the-mountain, and western ragweed. There is a tendency to treat too late rather than too early. A good guideline for most perennials is to mow or apply the herbicide when weeds are in the early flower bud stage. Biennial thistles are an exception and should be treated in the rosette stage.

The most commonly used treatments are 2,4-D ester and a combination of 2,4-D and Banvel. Crossbow can now be used on pastures and Tordon is available for tough weeds. Grazing restrictions are minimal with the exception of milking dairy animals.

Uneven terrain often makes a uniform herbicide application difficult on grazing land. A marking system helps eliminate missed strips. Use care when applying herbicides near sensitive crops, gardens, windbreaks, and farmsteads. Injurious drift can occur for 0.5 mile or more.

Bob Stougaard and Alex Martin

ACR Acres Offer Good Potential for Weed Control

If left unattended, crop reserve acres can turn into a real weed problem next year. Ideal growing conditions coupled with no tillage on ACR acres have set the stage for excellent control of perennial weeds. Controlling perennial weeds successfully with herbicides depends on having the right growing conditions and chemical application at the right growth stage.

The flower bud through flower stages are ideal for treating perennial weeds with 2,4-D, Banvel, and Roundup. Canada thistle, field bindweed, hemp dogbane, and common milkweed on undisturbed sites are at or approaching these growth stages. Swamp smartweed will reach treatment stage later. ACR acres are an opportunity to deal with these weeds without involving a crop. Apply 1.5 quarts 2,4-D ester (4 lb/gallon) or 1 quart 2,4-D + Banvel. Where annual grass and broadleaf weeds are a problem, Landmaster, a combination of Roundup and 2,4-D amine is effective. Use caution when applying herbicides to minimize the chance of spray drift damaging nearby vegetation. When temperatures exceed 90 degrees Fahrenheit, 2,4-D ester and Banvel can produce vapors that drift and damage sensitive broadleaf plants.

Bob Stougaard and Alex Martin

INSECT SCIENCE

Chinch Bug Invasion Continues

Chinch bugs continue to plague sorghum growers in southeast Nebraska. Adult bugs are damaging seedling sorghum not even planted near wheat, and some nymphs or so-called "red bugs" are moving into adjacent sorghum. However, as of June 25, nymphs were still being found in high numbers in many infested wheat fields and have not moved into nearby sorghum. This is puzzling; it may be related to delayed development of the immatures. This spring's cool weather delayed movement of the adult bugs into wheat, which also delayed mating and oviposition. In addition, the continued cool weather in May delayed the growth and development of immature bugs; they are about two weeks behind typical growth.

What does this mean for future chinch bug populations? My guess is that fewer immature chinch bugs still in wheat will reach adulthood because maturing wheat is no longer providing adequate nutrition. If they do not reach adulthood (especially in isolated wheat fields), they will not be able to fly away and infest sorghum for the second generation of bugs. I would expect to see reduced overwintering populations this fall (at least compared to last year), although high numbers in high-risk areas will cause concern next year.

We have been asked about the level of residual activity in insecticides used for chinch bug control. Unfortunately, the insecticide sprays must contact the bugs to kill them unless systemic action occurs. When bugs feed behind the leaf sheath or below the soil surface, they are not exposed to the insecticide. Bugs that invade a field after it has been sprayed will need to be sprayed again. This makes control difficult and costly. Furadan works as a contact insecticide and also is systemic. Thimet is systemic and can be applied as a cultivation treatment. The systemic action of these two products is generally only effective when the insecticide is incorporated or applied in-furrow in moist soil. The activity only lasts for two to three weeks as the sap is ingested by the chinch bugs during feeding.

Barb Spike, Research Associate, Entomology

Tiger Mosquito May Enter State

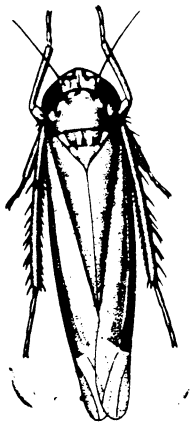
In recent weeks, several stories have appeared in the press regarding the Asian tiger mosquito. This mosquito apparently entered the United States in used tires from Asia in 1985. It has migrated as far North as Missouri, Illinois, Indiana and Ohio. It has not been found in Nebraska, but Wayne Kramer, medical entomologist with the Nebraska Department of Health, believes it is only a matter of time until it invades the state.

The Asian tiger mosquito is relatively small, but is distinctive with its black body and white markings on the legs. It breeds in tree holes and artificial containers such as used tires. The tiger mosquito is a very aggressive biter and has been implicated in the transmission of several human diseases, including encephalitis and dengue fever, in other countries. So far, the tiger mosquito has not been linked to the transmission of any diseases in the United States.

Fred Baxendale

Potato Leafhoppers Move Into Eastern Nebraska

Potato leafhoppers can be found in low to moderate numbers in many eastern Nebraska alfalfa fields. These adults migrated into Nebraska in May. They are not causing economic damage now, but this may occur once their offspring appear in larger numbers in the next few weeks. The feeding of potato leafhoppers interferes with the plant's ability to transport liquids from one place to another. An early damage symptom is yellow discoloration of the leaflet tip in the shape of a "V". Later, discoloration becomes purple or brown and the leaflet may drop off the plant. Severely damaged plants may be stunted and stems or whole crowns may even die.



Potato Leafhopper

It's important to control economic infestations before they cause visible damage. Most problems from potato leafhoppers occur during the second and third crop growing periods. Once regrowth after first cutting is 6 inches tall, scout each field weekly. The best sampling method for this pest uses a sweep net. Take 25 sweeps from each of four locations in each alfalfa field and count the number of potato leafhoppers in the net. This insect is small (1/8th inch or less), light green, and wedge-shaped. It often jumps or flies (if an adult) when disturbed.

The following table shows treatment thresholds for the potato leafhopper at various alfalfa heights:

Average height of alfalfa in inches	Average number of potato leafhoppers per sweep of a 15-inch 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 a list of insecticides registered for control of the potato leafhopper in alfalfa, refer to Extension publication, EC90-1511: *Field Crop Insect Management Guide for Nebraska — Alfalfa, Soybeans, Small Grains, Range and Pasture*. A color photograph of the potato leafhopper and its damage is shown in EC86-1545: *Common Forage Legume Insects*. Both are available from your local University of Nebraska Extension office.

Steve Danielson

Thrips Populations May be Moving to Dry Beans

The maturing of the winter wheat crop in western Nebraska means thrips may move into dry bean fields. The greatest potential for damage exists where beans are grown adjacent to wheat fields. These tiny insects (1/25-inch long) feed by sucking plant juices from the bean leaves, causing the leaves to develop a cup-shaped appearance. These symptoms will be most likely and most severe in beans under moisture stress.

The primary management recommendation is to avoid situations where the beans are under prolonged moisture stress. If this is not possible or feasible, insecticide treatments may be needed. Treatment thresholds are not available for thrips. Colorado entomologists have indicated that they have not observed losses with fewer than 15 onion thrips per plant. However, they stress that higher numbers can be tolerated and both thrips and damage symptoms need to be present to justify treatment. A second species, the flower thrips, may feed on blossoms, resulting in pod abortion. Economic levels for these thrips are also not known, but four to six per blossom have been observed to cause pod loss in Colorado. Beans normally undergo a certain amount of "natural" pod loss, and the importance of this loss is uncertain.

Insecticides labelled for thrips control on dry beans include Di-Syston 8E, Lannate, Orthene 75S, ethyl parathion, and Sevin. Read and follow all label directions.

Gary Hein

Banks Grass Mites Move Into Corn

As the winter wheat matures, banks grass mites are moving from wheat to nearby corn fields in some areas of southwest Nebraska. Some corn plants are being damaged or killed, primarily in rows nearest wheat.

In these cases, it may be advisable to treat affected areas with spot applications of dimethoate (Cygon) at a rate of 0.5 pounds AI per acre in sufficient water for thorough coverage. It usually is not necessary to treat the entire field.

We cannot say whether this activity is an indication of severe spider mite problems later in the season, but such problems will become more likely as temperatures increase and moisture decreases. Avoiding stressful conditions and unnecessary insecticide applications will reduce the likelihood of severe spider mite problems in corn.

Jack Campbell and Steve Danielson

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