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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 91-12] [June 14, 1991]

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Insect Science Plant Disease Weed Science NEWS

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In this issue

PLANT DISEASE

Wheat scab found in central Nebraska disease survey

A survey for wheat scab (also called Fusarium head blight) was conducted June 9 in four south central Nebraska counties. Of 30 fields surveyed in Clay, Fillmore, Nuckolls, and Thayer counties, 20 had detectable levels of scab ranging from low (less than 2% of heads with visible symptoms) to high (50% or more) incidence levels. Most fields, however, had incidence levels of less than 10%.

Scab is easily recognized on emerged, immature heads where one or more spikelets are bleached light tan to white. With prolonged wet weather, a pink or salmon color develops at the base of the infected spikelet and may extend along the crease of the glumes. This discoloration is due to the prolific growth of the fungus. Severely infected florets are sterile; less severely infected florets will have shriveled and pinkish-discolored kernels.

Grain harvested from diseased fields will contain various amounts of shriveled, lightweight kernels. The harvested grain should have a lower percentage of diseased kernels than what is found in the field. Many of the affected kernels, being lighter in weight, will pass through the combine along with the chaff. Remaining kernels that have been infected by scab will be lower in test weight and have a dull, lifeless and chalky appearance (called tombstones). The bran coat of these kernels may be broken open, and there may be mold development on the kernels.

The scab incidence and severity do not appear as great as in 1982.

Ben Doupnik

Leaf spot on sugar beets

Several samples of sugar beet plants with symptoms of bacterial leaf spot (*Pseudomonas syringae)* have been brought to the diagnostic lab of the Panhandle Research and Extension Center. Black to dark-brown spots and streaks appear on the leaves and occasionally on leaf petioles. Infection also occurs along borders of torn leaf tissue injured by hail or wind. The necrotic areas disintegrate and the leaves become very ragged. Infection requires injury by violent weather, insects, or farming practices.

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Small grain disease update:

Barley yellow dwarf appears; wheat diseases serious

Barley yellow dwarf is appearing in oats, barley, and wheat. A recent disease survey in Knox County found barley yellow dwarf was widespread but not severe. The incidence in surveyed fields ranged from less than 5 percent to about 30 percent.

The incidence and severity this year is relatively moderate compared to last year. In general, the northeast Nebraska oat crop should not be significantly affected by barley yellow dwarf this season.

Symptoms of barley yellow dwarf were also found in barley and wheat fields. In oats, barley yellow dwarf infection produces a red-leaf symptom; in barley and wheat, leaves become bright yellow. Even though barley yellow dwarf isn't likely to be a problem this year, growers should still select tolerant oat varieties for 1992.

Leaf rust, tan spot, and Septoria leaf blight have turned what appeared to be a bumper wheat crop into an average or less-than-average crop in many areas of the state. The severity of these three leaf diseases increased dramatically within the past two weeks., following a period of frequent rains.

High disease severity on flag leaves will render them nonfunctional earlier than normal and will undoubtedly reduce the grain-filling period. This translates into lower test weights and yields. Those growers that had their fields treated with a fungicide in May should see a return on their investment.

John Watkins

Wettable powder Benlate now available

DuPont Agricultural Products has started shipping new supplies of the wettable powder formulations of Benlate for use this season.

The packages, available in 25-pound drums and bright red 2-pound bags, will be clearly marked with the words "DuPont Quality Approved" so growers can easily differentiate it from the recalled dry flowable (DF) formulations. The company voluntarily initiated a nationwide stop sale and recall of Benlate 50 DF, Benlate 1991 DF, and Tersan 1991 DF on March 22 because routine quality inspections found traces of atrazine herbicide in a few production batches.

The wettable powder (WP) formulation is labelled for use on the same hosts, except turf, as the DF formulations, according to company representatives. Benlate is used to control a wide spectrum of plant diseases on many crops, including soybeans, fruits, vegetables, nuts, and ornamentals.

David Wysong

Sugar beets *(Continued from page 67)*

Many disease outbreaks are occurring because of the recent rainstorms and hail. Though plants appear badly damaged, the disease does not normally spread to newer leaves unless more violent weather occurs. Thus, in a few weeks the damage will hardly be noticeable. Young plants may be more severely damaged. The disease can be seed transmitted, but this source of infection has not been documented in Nebraska sugar beet fields. The optimum temperature for growth of the bacterium is 77°F to 86°F. Since the disease rarely causes economic loss, field control strategies have not been developed.

Eric Kerr

IPW News

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Lisa Brown Jasa, Editor

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Corn anthracnose leaf symptoms reported in Iowa

Corn seedlings in Iowa already are showing leaf symptoms of corn anthracnose, according to a phone call from the Iowa State University Plant Pathology Department Friday.

Typically corn anthracnose appears later in the season in Nebraska, but producers should be watching for development of leaf symptoms now.

Leaf spotting, top dieback, and stalk rot are the main symptoms. They vary with the weather, genotype, and age of leaves and stalks. Small, oval to elongate, water-soaked spots first appear on the leaves at any growth stage. The spots are semi-transparent and may occur on any part of the leaf blade. The spots enlarge to slightly over ½ inch in length and become tan at the center with red, reddish-brown, or yellow-orange borders. The enlarging lesions may grow together, blighting the entire leaf. Leaf symptoms are most common early in the season on the lower leaves and late in the season on upper leaves.

The disease is favored by moderate to high temperatures, extended periods of cloudy weather, and frequent showers. Free water is necessary for spore dispersion and germination. The fungus, *Colletotrichum graminicola,* affects many grasses including many small grains, sorghum, crabgrass, orchardgrass, redtop, and several others.

Resistance to anthracnose among corn hybrids differs considerably. Crop rotation and minimizing the amount of surface crop debris are important measures in reducing initial spring infections, thereby minimizing disease severity later in the season.

David Wysong

INSECT SCIENCE

First generation European corn borers: When is treatment necessary?

European corn borer moths have emerged and are beginning to lay eggs across the state. Egg hatch was reported the week of June 3 from counties south of Lincoln. Scouting for first generation European corn borers should begin as egg hatch occurs and feeding damage is apparent.

First generation moths prefer the tallest plants for egg-laying so expect to find initial concentrations in fields taller than surrounding corn. Scout these fields first. Look for eggs on the underside of leaves near the midrib. Egg masses consist of 15-30 white, flat eggs which overlap like fish scales. Eggs hatch in five to seven days.

Young larvae first feed on the leaf surface near where they hatched, but soon move into the whorl and feed on developing leaves. As these leaves grow and emerge, shot-hole feeding damage is visible. Larvae feed in the plant whorl for about two weeks, then bore into stalks and complete their development. Larvae are susceptible to control measures only while they are feeding on the leaf surface or in the whorl.

To determine the need to treat first generation corn borers, check at least 25 corn whorls in each of four locations in a field (100 plants total). Record the percent of plants with shot-hole damage. Unroll several damaged whorls at each site and record the number of live borers present, then calculate the average number of live borers per damaged plant. This will give you an estimate of the maximum number of borers that might survive to enter the stalk. Remember that mortality of young borers is normally high; if possible, avoid making a treatment decision until larvae are second instar or older. However, don't wait until larvae have left the whorl and bored into the stalk because they can not be controlled in the stalk.

To decide whether treatment is necessary, complete the worksheet below with the following information: average percent damaged whorls, average number of live larvae per damaged plant, cost per acre of insecticide including application costs, anticipated yield (bu/ac), anticipated corn value ($/bu), and estimated percent control from insecticide application.

Based on research data, the best control of first generation borers is achieved with granular formulations or applications through sprinkler irrigation systems. These methods provide the best penetration into the whorl where corn borer larvae feed.

Based on research data from Nebraska and other states, the following insecticides are expected to provide acceptable control in Nebraska: Dipel 10G, ES; Furadan 15G, Lorsban 15G, 4E; Dyfonate II 20G; Penncap-M; Pounce 3.2EC, 1.5G; and Ambush 2E, 25W. With the exception of

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First generation corn borers *(Continued from page 69)*

formulations of Dipel and Lorsban, all are restricted use pesticides.

The following may be applied through sprinkler irrigation systems: Dipel ES, Lorsban 4E, Penncap-M, Pounce 3.2 EC, and Ambush 2E and 25W. From the standpoint of applicator safety, and safety to beneficial insects and other nontarget organisms, products containing *Bacillus thuringiensis* (Dipel 10G, ES, and Biobit FC and WP) are preferred. Refer to EC 91-1509 for complete listings of registered insecticides, rates, and restrictions.

More information on European corn borer biology and management is in the Extension NebGuide G75-217, *European Corn Borer*. A recently revised regional extension bulletin, *European Corn Borer Development and Management* (NCR No. 327), also is available. It contains detailed information on European corn borer biology and management and an illustrated key to caterpillars commonly found in corn. It costs $3. To order either publication, write the Bulletin Room, Dept. of Ag. Comm., UNL, 68583-0918.

Bob Wright

Management worksheet for first generation European corn borer

	Example	*Your field*
1. Yield potential (bu/acre) for this field	125	
2. No. live larvae/plant = Ave. no. live larvae/damaged plant x ave. percent damaged plants (4 larvae/damaged plant x 50% damaged plants = 2 larvae/plant)	2	
3. Potential yield loss (bu/acre) 2 larvae/plant x 5% loss/larva = 10% yield loss; 10% x 125 bu. = 12.5 bu/acre	12.5	
4. Dollar loss/acre 12.5 bu/acre x $2.50/bu =$31.25 loss/acre	$ 31.25	
5. Preventable loss/acre (assume insecticide is 75% effective*) = Dollar loss/acre x percent control; =$31.25 x 75% = $23.44	$ 23.44	
6. Treatment costs/acre = Insecticide cost + application cost = $8 + 4 = $12	$ 12.00	
7. Compare preventable loss (5) with treatment costs (6) ($23.44 - 12.00 = 11.44 = $/acre saved by treatment)	$ 11.44	

If preventable loss (5) exceeds treatment costs (6) you may benefit from an insecticide application for first generation corn borer.

*75% control is a good average estimate of the control achieved with insecticides for first generation borer control. You may use other estimates if you wish.

Wait to re-enter after insecticide use

We often are asked about the length of time someone should wait before entering fields that have been treated with insecticides. Re-entry periods may be listed on the pesticide label. The following list provides the re-entry times for some of the more commonly used insecticides.

Follow all label directions and do not enter fields after treatment until the re-entry period has passed.

Bob Wright

Insecticide	*Re-entry period*
Ambush 2E	When spray is dry
Asana 1.9EC	When spray is dry
Comite 6.5EC	When spray is dry
Counter 15G	7 days (foliar) —After dust settled (soil)
Cygon 400	4 days
Diazinon AG500	When spray is dry
Diazinon 14G	After dust settles
Dipel 10G, ES	When dust settles or spray is dry
Di-Syston 8EC, 15G	24 hrs
Dyfonate II 20G	96 hrs (foliar) unless protective clothing worn —After dust settled (soil)
Dyfonate 4EC	24 hrs
Dylox 80S	When spray is dry
EPN 5EC	24 hrs
Force 1.5 G	None stated on label
Furadan 15G	None stated on label
Furadan 4F	24 hrs (limited activity in fields) —14 days (prolonged activity in fields)
Guthion 50WP	24 hrs
Imidan 50WP	When spray is dry
Lannate 1.8L, 90S	When spray is dry
Larvin 3.2F	When spray is dry
Lorsban 4E	24 hrs
15G	None stated on label
Malathion EC	When spray is dry
Metasystox-R 2E	48 hrs
Parathion (ethyl and methyl)	48 hrs
Penncap-M	48 hrs
Pounce 3.2EC	When spray is dry
Pydrin 2.4EC	When spray is dry
Sevin, all formulations	When spray is dry
Thimet 20G	7 days (foliar) —After dust settled (soil)

Grasshopper deadline near

Surveys conducted last fall by the Nebraska Department of Agriculture and USDA/APHIS reveal economic infestations of grasshoppers on several million acres of western Nebraska rangeland. Ranchers should be aware that some damage could occur to rangeland this summer.

A limited federal program, sponsored by USDA/APHIS, is available to assist with control on qualifying blocks of hopper infested rangeland only — not cropland. Ranchers interested in learning more about the 1991 grasshopper control program should contact their local Extension office. Wednesday, June 26, is the deadline for registering for the program.

Steve Danielson

ECB software training available

Training sessions on the Nebraska European Corn Borer Management Software computer program have been scheduled for June 17 in Lincoln, June 18 in Neligh, and June 21 in Clay Center. All meetings will be 1-3 p.m.

The Lincoln session will be held at the UNL East Campus, Room A222 Animal Sciences, the Neligh session at the Antelope County Extension office, and the Clay Center session at UNL's South Central Research & Extension Center. Training will consist of a lecture and demonstrations. There will be a $5 registration fee at all locations.

Bob Wright

Pesky moths return

Many people have been bothered by the large number of "miller moths" in and around buildings recently. Many of these moths are army cutworm adults that have developed from the larvae that were causing problems in wheat and alfalfa earlier this year. The good news is that these moths will not cause damage except that their excrement may leave spots on surfaces where they are resting. These spots should wash off with soap and water. Keeping windows closed or screened will keep the moths out of homes, but little can be done to keep them away from the outside of the buildings. Reducing the amount of lighting at night may help since these moths tend to be attracted to light.

If past experience is repeated, the army cutworm moths will soon migrate west to the Rocky Mountains where they traditionally spend the summer months. Then, in the late summer and fall, these moths will return to the Plains to lay eggs in disturbed soil. Larval cutworms then hatch from the eggs in about a week and feed on available vegetation for a few weeks before cooler temperatures set in. The cutworms overwinter as partially grown larvae and will begin feeding again in March and April when temperatures increase.

It is unusual for the army cutworm to be as numerous in central and eastern Nebraska as it has been this year.

Steve Danielson

WEED SCIENCE

Replant options for corn, sorghum

Crop damage from flooding, hail or insects may cause farmers to consider replanting. Replanting options vary according to which corn or sorghum herbicides were applied.

The following table lists replant options based on our judgment for various herbicides with the time delay required between application and planting. These estimates can be influenced by several factors including application rate, soil organic matter content, and pH.

One method of planting into soil containing damaging herbicide residues is to set furrow openers on the planter to remove the surface soil. A heavy rain after planting would negate this technique and may result in the crop being "silted under." Use herbicides only "as needed" on the replant crop.

Bob Stougaard and Alex Martin

Replant options for corn, sorghum

Herbicide	*Replant Crops*	*Time Delay*
Accent	Soybeans	None
Atrazine	Sorghum	None
Banvel	Sorghum	15-30 days (depending on rate)
Beacon	Soybeans	None
Bicep	Sorghum (safened seed)	None
Bladex	Sorghum, Soybeans	5-30 days (depending on rate)
Buctril/Atrazine	Sorghum	None
	Soybeans	Unknown
Bullet	Sorghum (safened seed)	None
Cycle	Sorghum (safened seed)	0-15 days
Dual	Sorghum (safened seed)	None
Eradicane	Sorghum	30 days
	Soybeans	10-15 days
Extrazine	Sorghum	15-30 days (depending on rate)
Laddok	Sorghum	None
	Soybeans	Unknown
Lasso	Sorghum (safened seed)	None
	Soybeans	None
Lariat	Sorghum (safened seed)	None
Marksman	Sorghum	30 days
Princep	Corn only	None
Prowl	Soybeans, Sunflowers	None
2, 4-D	Sorghum	7-10 days
	Soybeans	None
Ramrod	Sorghum	None
	Soybeans	None
Sutan	Sorghum	None
	Soybeans	10-15 days

Consider whole field when choosing herbicide

Crop growth stage restrictions are an important consideration when choosing a postemergence herbicide for sorghum. Gauge treatments on how the majority of the field develops. Early applications may allow lower rates, better coverage, and more effective weed control. Do not cultivate for five days before or after herbicide application.

Laddok at 2.4 pints per acre plus either oil concentrate or UAN effectively controls 2-4 inch broadleaf weeds and can be applied until sorghum is 12 inches tall. A 3.5 pint rate will control taller weeds and help suppress yellow nutsedge and field bindweed.

Atrazine 90 DF can be applied to completely emerged sorghum at a rate of 2.2 to 3.3 pounds per acre with water as the carrier. It will control grass and broadleaf weeds less than 1.5 inches tall. A rate of 1.3 pounds per acre plus oil concentrate also can be used to control broadleaf weeds 4 inches tall after the sorghum has reached the three-leaf stage. Don't use if the sorghum is more than 12 inches tall.

Buctril plus atrazine can be applied alone or with Banvel or 2,4-D. The maximum sorghum growth stage for all Buctril plus atrazine treatments is 12 inches. Buctril plus atrazine at the rate of 1.5 to 2 pints per acre can be applied after sorghum emergence. When using the 3-pint rate, delay applications until the sorghum reaches the fourth-leaf stage. With 2,4-D or Banvel tank mixes, use drop nozzles if the crop is taller than 8 inches. Do not apply in the boot stage.

Banvel applications at 0.5 pints per acre alone or with 0.5 to 1.25 pounds active ingredient of atrazine should also be delayed until the sorghum is in the third-leaf stage. Banvel can be applied to sorghum up to 15 inches tall. Use drop nozzles if the sorghum is over 8 inches tall.

2,4-D amine at 1 pint per acre or **2,4-D ester** at 0.75 to 1.25 pints per acre can be used on 6- to 15-inch sorghum. Use the 1.25 pints per acre rate of 2,4-D ester for perennial broadleaf weeds. Use drop nozzles if the sorghum is over 8 inches.

Bob Stougaard and Alex Martin