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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 91-5] [April 19, 1991]

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

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

Insect Science Plant Disease Weed Science NEWS

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

No. 91-5 April 19, 1991

In This Issue

PLANT DISEASE

Alfalfa Suffers Heavy Winterkill Losses

Much of Nebraska's alfalfa has suffered winterkill or winter-injury. Losses occurred from Scottsbluff southeast to Lexington and northeast to Knox County. The Sandhills also may be affected but there has not been enough green-up there to know for sure. Some alfalfa fields were totally killed while others suffered partial injury. Weather conditions appear to have caused this winter-injury, with root diseases and late harvests being a minor factor.

The Plant Disease Diagnostic Clinic has received about a dozen alfalfa samples. Examination showed the normal

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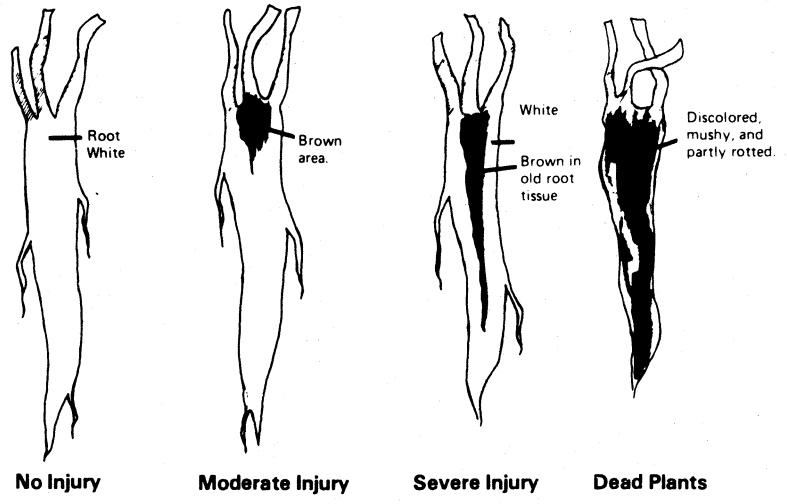
Determining Degree of Alfalfa Damage

Determine the extent of winter damage by examining alfalfa roots after spring growth begins. Roots on healthy plants are solid and white internally. Brown discoloration in old tissue of the crown is the first sign of damage. The browning extends down the center of roots injured more severely. When more than half of the root tissue is damaged, the plant is not likely to survive. *(Illustrations courtesy University of Wisconsin Extension.)*



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

Alfalfa Winterkill *(Continued from page 25)*

amount of crown rot, and in some plants, anthracnose; however, the severity of crown diseases was no different than normally expected. Don't confuse crown rot with the internal browning from cold temperature injury (see diagram).

This winter-injury seems to be related to the weather conditions. In particular, soil temperatures just before Christmas dropped from about 32 degrees to less than 15 degrees in only three days. Such a rapid drop can cause ice crystals to form inside alfalfa roots. These ice crystals destroy root cells, causing injury or death.

Other weather conditions also contributed. Record high temperatures last September stimulated alfalfa growth rather than developing winter hardiness. Thus, plants may not have winter hardened adequately. As if that's not enough, February high temperatures exceeded 50 degrees most days and soils thawed, causing some alfalfa plants to break dormancy and begin growth. Two hard freezes during this period weakened alfalfa plants further.

Recovering Affected Stands

Decisions must be made soon regarding injured alfalfa fields. Consider whether the alfalfa stand can be salvaged. In dryland stands that are one or two years old, we need a bare minimum of three to four living plants per square foot. Older dryland stands are salvageable with two to three plants. Irrigated stands need at least four to six plants per square foot regardless of stand age.

Applying 15 to 25 pounds nitrogen fertilizer to injured acres has been shown to help. Root damage prevents plants from manufacturing their own nitrogen or absorbing it from the soil. Weed invasion also must be avoided so recovering plants are not stressed by excessive competition. Most importantly, delay first harvest until plants are between 25% and 100% bloom. Also, do not harvest subsequent cuttings until plants begin to bloom, and do not cut after Labor Day.

Replanting Options

If alfalfa stands are too thin to produce acceptable yields, there are several planting options. Oats may be planted immediately into thinned stands and cut for hay about heading. Stands should then be destroyed. Alfalfa could be replanted in August or winter wheat seeded in September. In other fields, the alfalfa can be destroyed and then planted to summer annual grasses like millet or sorghum. Again, alfalfa or winter wheat might be seeded into the field later in the season. At times, the best option might be to destroy the alfalfa and rotate to a corn, milo, or other crop. New alfalfa fields could be started yet this month to replace those lost to winterkill.

John Watkins
Bruce Anderson, Agronomy Professor

DuPont Recalls Benlate DF, Tersan 1991

DuPont has recalled all Benlate 50DF, Benlate 1991DF, and Tersan 1991. The reason for the edict is a possible contamination of these product inventories by atrazine herbicide.

Commercial greenhouse managers, turfgrass managers, and fruit and vegetable growers should **not** use these products until this matter has been resolved. The DuPont directive did not identify products sold through garden centers for home garden or landscape use but caution is urged in this aspect.

For further information contact the DuPont product hotline: 1-800-342-5247.

John Watkins

IPW News

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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

Corn Rootworm Control Starts with Planning

Planning is essential to controlling corn rootworms. Ask yourself the following questions as you prepare for the 1991 season.

1) In which fields should corn be planted? Continuous corn production favors corn rootworm survival; crop rotation is a highly effective nonchemical control measure. If you have rootworm beetle scouting data from 1990, this information should be considered when deciding which fields to plant to corn (e.g., rotate fields with highest beetle counts out of corn).

2) Should I use a soil insecticide at planting? Because crop rotation is such an effective control measure for corn rootworms, use of a planting-time soil insecticide is rarely profitable in first year corn. Consider treating first year corn only if corn follows oat stubble, or soybean fields heavily infested with volunteer corn (usually more than 4,000 corn plants per acre) or weeds. Even in continuous corn production, many fields do not have high enough levels of corn rootworms to cause economic loss. Adult beetle counts from 1990 can be used to identify fields with a low risk of economic loss from corn rootworms; a planting-time soil insecticide is not recommended for these fields.

In fields where a soil insecticide is needed, if the corn is planted early (before May 15), planting time applications provide less reliable insecticide performance than treatments at cultivation. This is because of the long period of time between planting and rootworm egg hatch. Another factor greatly influencing soil insecticide performance is calibration of application equipment. Many "failures" of soil insecticides are due to poor equipment calibration. Take time now to calibrate granular applicators.

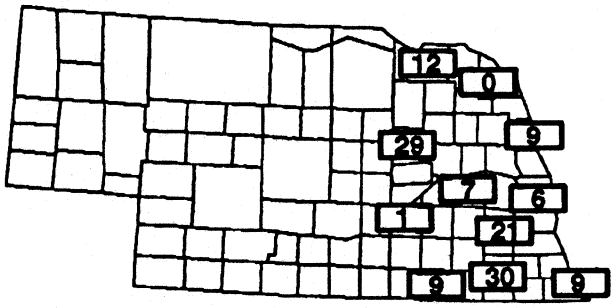
Soil insecticide performance data (planting time and cultivation time applications) for 1990 are listed on page 29. It is based on research conducted by Lance Meinke of the Entomology Dept. at the University of Nebraska Agricultural Research and Development Center near Mead.

(Continued on page 28)

Black Cutworm Moths Move into Nebraska

Since April 1, relatively high numbers of black cutworm moths have invaded the state, particularly this last week, when a strong low pressure system lingered in the region, bringing them in on southerly winds (see map). The importance of these flights is questionable since they are earlier than normal. Significant flights in mid-to-late April offer higher potential for black cutworm injury to corn and sorghum.

Normally, moths deposit eggs on green vegetation such as weeds developing in fields or plants in field margins. The potential for black cutworm injury increases in corn and sorghum fields when weed growth is favored and/or tillage operations are delayed. In such fields, cutworms will develop until weedy hosts are destroyed by herbicides or tillage. Planting seven or more days after weeds have been destroyed greatly diminishes the potential for cutworm damage to subsequent seedlings. Because infestations tend to be sporadic, preventive treatment before or at planting is not economical. A post-emergence rescue treatment is advised in corn or sorghum when one plant out of twenty is damaged. See Extension Circular 91-1509, *1991 Insect Management Guide for Nebraska Corn and Sorghum*, for recommended insecticides.



Black cutworm moth countss April 9-15 with SCENTRY wing-style pheromone traps

Jim Kalisch

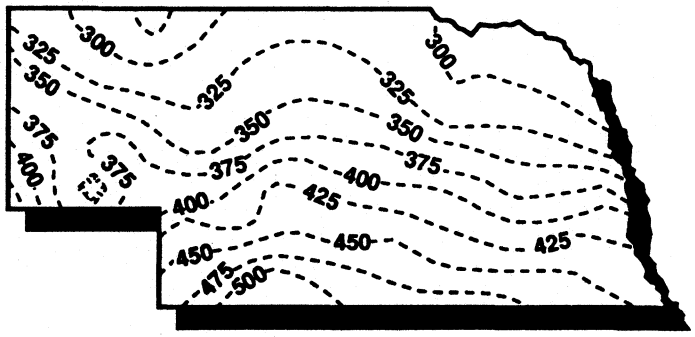
Corn Rootworm Control *(Continued)*

If Counter insecticide will be used, note the potential for interactions with the herbicides Beacon and Accent which may cause plant injury (see *IPW News* No. 91-2, March 22).

3) Should my fields be scouted for rootworms? If you did not have your corn scouted in 1990, you should seriously consider doing it in 1991. Regular monitoring (or scouting) of corn during the growing season by a properly trained individual can provide a great deal of information useful in managing corn rootworms and other pests. Adult rootworm scouting can identify whether economic damage is likely the next year if continuous corn is grown. It can identify the need for, and proper timing of an adult control program aimed at preventing silk damage or reducing egg-laying by adults. See NebGuide G86-774, *Western Corn Rootworm Soil Insecticide Treatment Decisions Based on Beetle Numbers*, for further information on scouting procedures and interpretation of beetle densities. Producers who have the time and training can do their own scouting or they can hire someone trained in pest identification and scouting procedures. Crop consultants, or others providing scouting services, may offer a variety of services from insect scouting to a complete program of scouting, nutrient management and irrigation scheduling. Evaluate their fees in relation to your needs and the types of services they provide.

Bob Wright

Alfalfa Weevil Larvae May be Common



Accumulated degree days, based 48, for predicting alfalfa weevil development. These numbers are as of April 14.

Based on data in this map, we are predicting that alfalfa weevil larvae are present in alfalfa across the state. Growers in southern Nebraska, particularly where degree day contours are over 400, should be scouting fields for weevils and weevil damage once alfalfa is 6 inches high. Peak larval feeding is expected when 600 degree days have accumulated in your local area. For more information about sampling for the alfalfa weevil, see *IPW News* No. 91-3 from March 29.

Steve Danielson

Rootworm Insecticides Evaluated

The following data is from corn rootworm insecticide performance studies conducted in 1990 .This information should be considered in the context of these experiments. The experimental design was a randomized complete block with four replications. Root ratings were based on a 1-6 rating scale, with 1 being no damage and 6 meaning that three or more root nodes were destroyed.

The planting-time and cultivation-time plots were planted May 7. Planting-time treatments were applied either in-furrow (I), or as a 7-inch band (B) over the row and in front of a press wheel. Cultivation treatments were applied in a 7-inch band on June 11 and cultivated into the soil. For comparative purposes, two banded planting-time treatments were included in the cultivation test. Means in each column followed by the same letter are not statistically different (p=0.05).

These experiments included some insecticides and application rates not registered and not legal for general use. Follow all pesticide label directions and apply only federally registered pesticides.

Bob Wright

(Continued on Page 29)

1990 Rootworm Insecticide Evaluations

First Cultivation Applications

Insecticide	*Rate (oz AI/1000')*	*Mean Root Rating (1-6 scale)*
Furadan 15G	1.20	2.30 a
Counter 15G	1.20	2.30 a
Fortress 5G	0.30	2.65 ab
Force 1.5G	0.12	2.80 ab
Counter 20CR	1.20	3.15 bc
Thimet 20G	1.20	3.15 bc
Dyfonate II 20G	1.20	3.15 bc
Aztec 2.1G	0.14	3.20 bc
Lorsban 15G	1.20	3.50 c
Untreated		4.45 d

Planting-Time Standards

Dyfonate II 20G	1.20	2.40 a
Counter 15G	1.2	2.80 ab

Planting Time Applications

Insecticide	*Rate and Placement (oz AI/1000)*		*Mean Root Rating (1-6 scale)*
Fortress 5G	0.3	B	2.10 a
Counter 20R	1.2	I	2.15 ab
Counter 15G	1.2	B	2.15 ab
Counter 15G	1.2	I	2.25 ab
Counter 20CR	1.0	B	2.25 ab
Fortress 5G	0.3	I	2.30 a-c
Counter 20CR	0.9	B	2.30 a-c
Counter 20CR	0.9	I	2.30 a-c
Force 1.5G	0.12	I	2.50 a-c
Force 1.5G	0.15	I	2.55 a-d
Brace 10G	0.6	I	2.60 a-e
Counter 20CR	1.2	B	2.60 a-e
Counter 20CR	1.0	I	2.65 a-e
Aztec 2.1G	0.14	B	2.70 a-e
Holdem 20G	1.2	B	2.75 a-e
Lorsban 15G	1.2	B	2.75 a-e
Aztec 2.1G	0.14	I	2.75 a-e
Dyfonate II 20G	1.2	B	2.85 b-e
Lorsban 15G	1.2	I	2.85 b-e
Force 1.5G	0.12	B	2.85 b-e
Holdem 20G	1.61	B	3.00 c-e
Thimet 20G	1.2	B	3.25 de
Furadan 15G	1.2	B	3.30 e
Untreated			4.70 f
Untreated			5.05 f

Field Scout Training Includes Pest Identification, Nutrient Concerns

Individuals wanting to learn more about scouting for pests may want to attend the upcoming Field Scout IPM Training sessions.

Following is the schedule of training sessions and Extension staff to contact for more information:

Lincoln — UNL East Campus Union, May 15; contact Bob Wright at (402) 472-2125.

North Platte — West Central Research and Extension Center, May 29; contact Jack Campbell or Ron Seymour at (308) 532-3611.

Kearney — Buffalo County Extension office on May 30; contact Jack Campbell or Ron Seymour at (308) 532-3611

Center — Center Community Hall, May 31; contact Keith Jarvi at (402) 584-2261.

The training will include identification of pests (insects, mites, weeds, and plant pathogens), scouting procedures, identification of nutrient deficiencies, and irrigation scheduling for major field crops. Lecture and laboratory sessions will be included.

The Lincoln, North Platte and Kearney meetings will start at 9 a.m. and the Center meeting will start at 9:30 a.m. A registration fee of $5-10 will be charged to cover costs associated with the meeting.

Two videotapes and a field scout manual are available for home study. The *Field Scout Manual*, revised in 1990, contains written descriptions and pictures on identification, biology and scouting procedures of common Nebraska insects, mites, weeds and diseases found on major field crops. Cost is $28 plussales tax.

The videotapes address insect scouting procedures — one covers corn insects and the other alfalfa and soybean insects. The videotapes (1/2 inch, VHS format) focus on identification and scouting techniques for major pests. Each videotape costs $29.95 plus sales tax; order both videotapes for $50 plus sales tax.

These materials are available from the UNL Department of Agricultural Communications. To order send a check made out to the University of Nebraska to Field Scouting, 104 Ag. Communications, University of Nebraska-Lincoln, Lincoln NE 68583-0918.

Bob Wright

WEED SCIENCE

New Herbicides Released; Labels Changed

The EPA has granted several new herbicide registrations. Probably the two most important for Nebraska are Accent and Beacon. Also, there were changes in old registrations, most notably, the atrazine label.

Corn Herbicides

Accent (nicosulfuron). A selective postemergence sulfonylurea herbicide for corn to control shattercane, sorghum almum, johnsongrass, fall panicum, and other annual grasses, and certain broadleaf weeds. DuPont.

Atrazine. The EPA has reclassified atrazine as a Restricted Use Pesticide and amended the label to reduce applicator exposure and potential movement of atrazine into surface or groundwater. Applicators must be certified (or under supervision of a certified applicator) and must wear protective clothing. Mixing, loading, and applying atrazine within 50 feet of wells and sinkholes is prohibited. Atrazine cannot be applied through irrigation systems. The maximum atrazine rate is 3 lb ai/A for corn and sorghum. Postemergence applications must be made before the crop is 12 inches tall.

The use of atrazine for weed control in proso millet, pastures, rangeland, and CRP land has been deleted from the label.

Beacon (primsulfuron). A selective postemergence sulfonylurea herbicide for corn to control shattercane, sorghum almum, johnsongrass, fall panicum, and other annual grasses and several common broadleaf weeds. Ciba-Geigy.

Buctril + atrazine. Control of toothed spurge, burcucumber, and kochia were added to label; does well on triazine resistant kochia. Use at a rate of 2 pints per acre for 2-inch tall kochia and 3 pints per acre for 4-inch tall kochia. Banvel can be added for broader spectrum control. Rhone-Poulenc.

Cycle (metolachlor + cyanazine). This is a 2 + 2 lb/gal premix of the active ingredients in Dual and Bladex to be used as a preplant and preemergence herbicide for controlling annual grasses and broadleaf weeds in corn and sorghum. Ciba-Geigy.

Stinger (clopyralid). Registration for control of Canada thistle in sugarbeets has been expanded to include corn. DowElanco.

Soybean Herbicides

Assure II (quizalofop). This is a new formulation (resolved isomer) of Assure containing twice as much active ingredient as the original formulation. DuPont.

Passport (imazethapyr + trifluralin). A premix containing the active ingredients of 0.8 pint Pursuit + 2.4 quart Treflan. It's used as a preplant incorporated herbicide for annual grasses and broadleaf weeds. American Cyanamid.

Riverside Trific 60DF (trifluralin). Used as a preplant soil incorporated herbicide to control annual grasses and broadleaf weeds. This is the first true dry flowable formulation of trifluralin. Terra.

Partner (alachlor). A water dispersible granule formulation of Lasso MT. Monsanto.

Other Bean Herbicides

Gramoxone Extra (paraquat). Desiccant to be used for harvest aid for drybeans. ICI.

Poast (sethoxydim). Has been approved for snap beans, pinto beans and fava beans for postemergence control of annual grasses. BASF.

Alex Martin and Gail Wicks

Limit Herbicide Drift

Each year producers suffer losses from by herbicide drift and volatility. Herbicide drift can be caused by environmental factors or improper application techniques.

Environmental factors such as wind, air temperature and temperature inversions often are the most important. Apply chemicals when wind speeds are low, preferably below 10 mph, and air temperatures are low (75 degrees). Volatile herbicides have a greater potential for causing injury as air and soil temperatures increase. Injury is also greater under conditions of high relative humidity.

Temperature inversions are another environmental concern. Applying a pesticide during a temperature inversion can cause significant off-target pesticide movement. Inversions usually occur early in the morning or late in the afternoon when cool air near the soil surface is trapped under a layer of warmer air. The pesticide can be suspended in the warm air layers. Use a small fire or smoke bomb to detect an inversion. Smoke moving horizontally close to the ground signals an inversion.

Application techniques can be adjusted to minimize spray drift. Spray as close to the target as possible. The higher the spray is released above the target, the more likely it is to move to non-target plants. Use non-volatile herbicide formulations when available and keep spray pressures low. The lower the pressure, the larger the spray droplets, and the less likelihood of drift. Special nozzle types and spray additives can reduce the number of fine droplets and thus drift. Leaving an untreated border strip next to susceptible plants can also provide some protection.

Bob Stougaard and Alex Martin