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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 91-23] [Sept. 13, 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. 91-23 Sept. 13, 1991

In this issue

INSECT SCIENCE

Most parathion uses voluntarily canceled

Makers of the insecticide parathion (=ethyl parathion) are immediately canceling most uses of this product, according to a Sept. 5 news release. The voluntary cancellation was stipulated in a settlement reached between the U.S. Environmental Protection Agency (EPA) and insecticide registrants. The cancellation is based on the health risks of parathion to humans (agricultural workers and pesticide users) and wildlife. This cancellation does not apply to uses of methyl parathion (e.g., Penncap-M) which has a lower acute toxicity to humans.

The agreement eliminates all but nine of the almost 90 registered uses, excluding alfalfa, barley, canola, corn, cotton, sorghum, soybeans, sunflower and wheat. Field crop uses were continued because the EPA has determined that risks to agricultural workers using parathion with these crops are lower than with other crops (primarily fruits and vegetables) because these agricultural crops use mechanical harvesting rather than hand labor. Some of the canceled uses include: beans (dry + snap), Christmas trees, clover, grasses (forage), irrigation ditches, mosquito abatement, oats, pastures, potatoes, and sugar beets.

The EPA also announced that it plans to cancel the remaining field crop uses. The cancellation process is lengthy and can take up to 18 months.

Also, until field crop uses are canceled, new restrictive measures to provide additional protection to workers in field crops will be implemented.

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

Parathion (*Continued from page 129*)

Applications will be restricted to provide for:

•only aerial application by certified commercial applicators in enclosed cockpits;

•only closed mixing/loading systems;

•additional reentry restrictions for field worker protection;

•no application within 100 feet of buildings, roads, or water;

•no application within 100 feet of property lines unless the adjacent property owner has given written consent;

•no application if wind speeds exceed 10 mph; and

•new reporting requirements for worker exposure incidents, spills, spray drift (or allegations of spray drift) or deaths of birds or other wildlife.

After Dec. 1, 1991, sale of parathion is prohibited unless stocks have new stickers with the approved label and are in containers compatible with the closed mixing/loading system requirements. Existing stocks of products containing parathion can be used according to label instructions for any use appearing on the label until Dec. 31, 1991. After Dec. 31, all uses of existing stocks of parathion products, except on the approved field crops, will be prohibited.

For more information on this change, contact Shripat Kamble, UNL Extension Pesticide Impact Assessment Specialist, (402) 472-6857, or Larry Schulze, UNL Extension Pesticide Coordinator, (402) 472-1632.

Bob Wright

Third generation ECB moths found

Andy Christiansen, Extension agent in Hamilton County, reports that the number of European corn borer moths caught in a black light trap at Aurora increased greatly starting Aug. 21, with more than 1000 moths per night caught on Aug. 26 and 27.

This probably signifies the occurrence of a third generation of European corn borers this year. European corn borers normally enter hibernation at the end of the larval stage of the second generation, in response to decreasing daylengths and temperature. However, if they develop earlier than normal, during longer daylengths, they may continue development through to moth emergence and produce a third generation.

The practical significance of this third generation moth flight may not be great. Most corn has reached physiological maturity, is beginning to dry down, and would not support corn borer growth to maturity. At this late date, there would be no reason to spray corn for corn borers. However, corn borers have a wide variety of host plants on which they can develop, including both cultivated and noncultivated plants, and some eggs laid by these moths can develop to the mature larval stage, which overwinters, before the first frost.

Bob Wright

For your information

The following new or revised Extension publications recently were released by University of Nebraska-Lincoln Commmunications and Computing Services. They are available from your local Extension office or from UNL Communications and Computing Services, Room 104, Ag. Communications Bldg., Lincoln, NE 68583-0918.

G91-1045 Lawn Weed Prevention and Management. This NebGuide discusses strategies and recommendations for weed control in turf.

EC90-103 Nebraska Fall-Sown Small Grain Variety Tests 1990. This circular reports on variety trials at the South Central, West Central and Panhandle Research and Extension Centers.

IPW News

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Lisa Brown Jasa, Editor

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

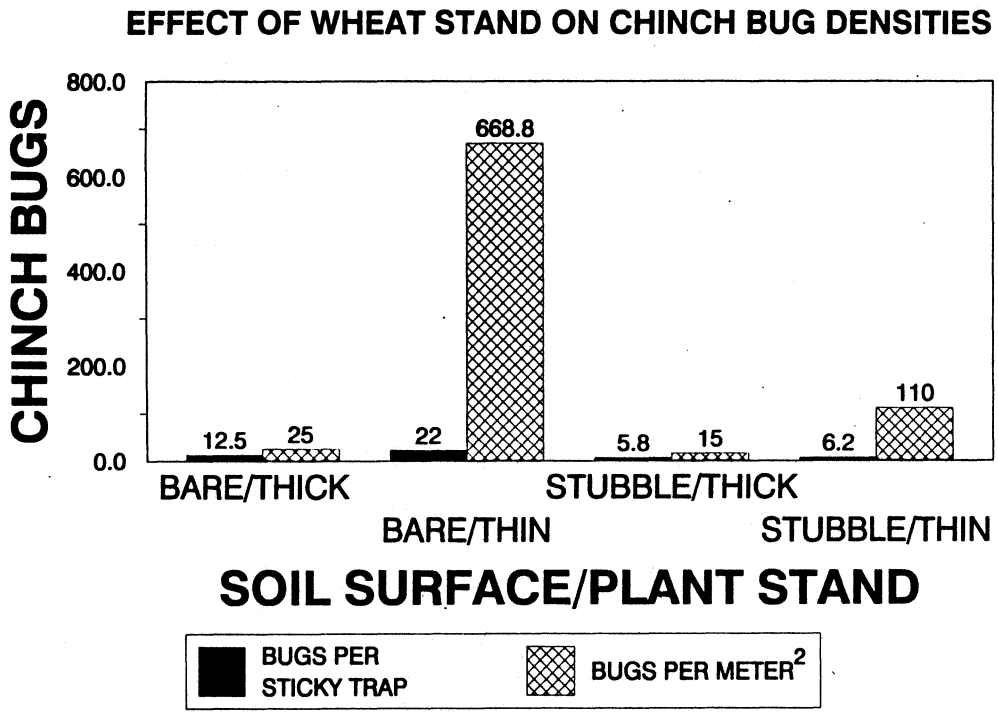
UNL Department of Entomology
202 Plant Industry Bldg.
Lincoln, NE 68583-0816

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

Optimal wheat management practices can reduce chinch bug threat

A number of Nebraska counties had chinch bug infestations in sorghum or corn this past season. Most severe infestations were reported in Gage, Saline, Jefferson, Thayer, Fillmore, Cass, and Otoe counties. Infestations also were reported as far north as Burt, Dodge, and Washington counties. The wet spring and dense wheat stands generally resulted in fewer problems than in 1989 and 1990 in many areas. However, chinch bugs are still present in many areas in moderate population levels feeding on maturing sorghum and corn plants. These stages tolerate feeding so well that growers may not even be aware of the chinch bugs in their fields. Because of the drought since June, growers in southeastern Nebraska should expect a resurgence of the chinch bug problem next year, especially if dry conditions result in poor wheat stands.



Contrary to reports in the early literature, chinch bugs can and do severely damage wheat. They prefer to attack poor, thin stands of wheat that have been planted late in the fall, or are poorly fertilized, thinned by cold winter temperatures or are poorly germinated and slow growing because of dry soil conditions. In the spring, thin wheat fields attract large numbers of chinch bugs that reproduce abundantly. Results from a study conducted in 1991 at the Frampton Demonstration Farm near Lincoln indicate that almost twice as many chinch bugs flew into thin plant stands as thick stands. Several weeks later there were even higher chinch bug populations in the low plant densities (see diagram).

This study, conducted in cooperation with Lancaster County Extension agents, Ward Shires and Dave Varner, used two seed densities (29 and 85 pounds seed per acre) to produce thin and thick plant stands. However, fields with plant residue on the soil surface may be less attractive to chinch bugs. Wheat planted into no-till wheat stubble had reduced numbers of chinch bugs flying into the plots (and subsequently lower population densities) compared with wheat planted into a bare (disked) soil surface. It is unclear why chinch bugs are not as attracted to wheat planted into wheat stubble; this puzzling occurrence deserves more study.

If growers have observed reduced chinch bug numbers in wheat or sorghum in no-tillage situations (i.e., with surface trash), I would be interested in learning about their experiences. I can be reached at the Department of Entomology, University of Nebraska, Lincoln, NE 68583-0816. Telephone: 402 472-2125.

Barb Spike
Research Associate - Entomology

(See page 132 for more on wheat management practices for controlling chinch bugs.)

Methods for managing chinch bugs

Use optimal wheat management techniques to reduce the likelihood of chinch bugs severely damaging wheat and posing a threat to nearby susceptible crops like sorghum and corn. These techniques include:

1) Plant wheat as close as possible to recommended planting dates (see *When to Plant Wheat,* NebGuide G73-36). In chinch bug-infested areas of Nebraska, plant between Sept. 25 and Oct. 1. University tests conducted in Gage and Saline counties show significant yield losses every day planting is delayed after Oct. 9. If planting before fly-free dates for the Hessian fly, use a variety resistant to this pest (see *Hessian Fly On Wheat,* NebGuide G73-46).

2) Plant a moderate to heavy seed population. In eastern Nebraska, optimum seeding rates are 50-60 pounds per acre (see *How to Plant Wheat,* NebGuide G73-35), although heavier rates (up to 80 pounds per acre) may be planted if moisture is adequate. Even though a thin wheat stand will tiller in spring and fill in, a heavier plant density is less attractive to chinch bugs when they move into wheat in early April.

3) Use the best and most fertile fields possible for wheat production and don't cut fertilizer use. Grow something else in fields which consistently produce a poor wheat crop. Wheat grown for forage is just as susceptible to chinch bug attack as that grown for grain. And, grass crops (sorghum, corn, sudax, millet) planted into harvested wheat will be severely attacked and possible destroyed by chinch bugs unless several weeks have passed after cutting.

Barley is more susceptible to chinch bug attack than wheat, and chinch bugs prefer oats less and cause less damage in it than in wheat. Oats may be a possible substitute crop under certain conditions. Chinch bugs also feed on rye and triticale.

In areas where chinch bugs have been a problem, don't grow wheat as a winter cover crop, tear it up in the spring, and then plant it to a susceptible crop like sorghum or corn. The torn-up wheat, thinned and stressed, is likely to be very attractive to migrating chinch bugs. A legume would be a safer cover crop.

The most successful way to manage chinch bugs is to carefully plan the location of wheat and sorghum fields to avoid side-by-side planting. Minimize damage to wheat by producing a lush, healthy stand that will not be attractive to chinch bugs. Why are chinch bugs attracted to thin stands of wheat? The answer may be related to the fungus (*Beauveria bassiana*) which may play a role in regulating chinch bug populations. This fungus kills chinch bugs by producing an enzyme which allows the fungus to grow into the insect body. Moist and humid conditions are necessary for this (and resulting epidemics) to occur. Chinch bugs may seek thin stands of wheat because they prefer lower humidities in these fields thereby avoiding this disease. More research is needed on these relationships .

Barb Spike
Research Associate-Entomology

PLANT DISEASE

Reports indicate alfalfa rust may be serious

That reddish-brown substance that covers the windrower after the third or fourth cutting may not be dust but rather the spores of alfalfa rust. Rust is a fungus disease that occurs late in the growing season in Nebraska. As with wheat rusts, the degree of rusting in alfalfa varies considerably from year to year. This year we have already received reports of heavy rusting of some stands in northeast Nebraska.

Most years, rust causes little damage to forage harvested at one-month intervals. However, it may cause severe defoliation late in the season if forage harvest is delayed or stands are held for seed production. Rust often builds up on fall regrowth and on unharvested alfalfa in fence rows. In some situations, it may weaken new fall-seeded stands and enhance the risk of stand thinning, or even loss due to winter injury.

As with other crops, rust is one of the easiest diseases to diagnose in alfalfa. It produces small, reddish-brown, circular pustules of urediospores on both upper- and lower-leaf surfaces. The spores rub off easily when touched. Severely rusted leaves shrivel and are shed prematurely. Rusted leaves are more likely to be injured by early fall frosts than nonrusted ones.

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Alfalfa rust *(Continued from page 132)*

Rust probably does not overwinter in Nebraska. Instead, it survives the winter in the southern states and slowly spreads north on air currents during the growing season. It develops rapidly from mid-August through September when cool nights and warm days produce heavy dews.

Because alfalfa rusts occur sporadically, little attention is paid to its control. There are few resistant varieties and chemical controls are not cost effective, so timely harvesting of forages to reduce leaf loss and remove inoculum offers the best control.

John Watkins

Weed Science

Effective weed control begins in fall

Musk thistle

October and early November are excellent times to control musk thistle providing the weather cooperates. A good fall control program normally eliminates the need for spring control because plants that would flower next summer are normally growing in the fall. However, the success of a fall control program depends on adequate fall rainfall. Dry weather reduces musk thistle seed germination and plant establishment. With dry weather, there may not be any plants to control.

Examine the site and determine if the thistle population justifies spraying. Herbicides options include Tordon 22K at 6 to 8 fluid ounces, 2,4-D + Banvel at 1.0 lb + 0.5 pt, and 2,4-D at 1.5 to 2.0 lb. These treatments are ranked in order of effectiveness for fall application. Under very dry, cool conditions, only Tordon can be expected to perform well. Treat after Oct. 1.

Leafy spurge

Leafy spurge can be controlled more consistently with fall treatment than spring treatment, according to recent research, so begin planning treatments now.

Control on a large area is costly and difficult. Treat small patches before they spread and create a more costly problem. Plants in a new infestation are more readily controlled than established stands because the root system is not fully developed. Once leafy spurge becomes well established, it cannot be eliminated with a single herbicide treatment.

Herbicides for leafy spurge control are 2,4-D ester at 2 lb/A, 1 lb of 2,4-D + 1 pt of Tordon 22K or Tordon 22K at 2 to 4 qt/A. The treatments would cost $5.00 to $14.60 per acre for 2,4-D or 2,4-D + Tordon and from $45.00 to $90.00 per acre for Tordon. Tordon 22K is much more effective than 2,4-D against leafy spurge. A 2 qt/A application usually provides 50-80% control a year later, and the 4 qt rate gives 90-100% control. Tordon is long-lasting and mobile in the soil. It should not be used near trees or on sandy soil where the water table is within 15 feet of the soil surface at any time. Near trees, 1 qt of Roundup plus 1 lb of 2,4-D amine can be used where grass stand is not a factor. Avoid contacting tree trunks. Don't expect to get rid of leafy spurge in one or two years.

Perennials — bindweed

Perennial weeds including field bindweed, Canada thistle, and others can be effectively treated with herbicides in the fall. Food storage in the root system of these plants occurs in fall. Herbicides applied in the fall to plants with excellent top growth readily move down to the roots along with food. In the fall, temperatures and soil moisture are generally more favorable for plant growth than during the summer, a condition required for best herbicide performance.

Herbicides most useful for controlling these perennial weeds are 2,4-D, combinations of 2,4-D + Banvel, Roundup, and Tordon. Treatment with 2,4-D and combinations of 2,4-D + Banvel must be made repeatedly to obtain satisfactory control. Tordon use for perennial weeds is limited to grazingland and non-crop areas. Glean is also finding its niche in Canada thistle control programs.

Treat after mid-September but before hard freezes occur. Daytime temperatures in the 50s are satisfactory. It is not necessary to spray before frost as long as the plants are still green and growing.

Bob Stougaard and Alex Martin

A state pesticide management plan: What policymakers may consider

This is the fourth article in a four-part series on agrichemical regulations in Nebraska.

EPA regulates pesticide availability and use under FIFRA, the Federal Insecticide, Fungicide and Rodenticide Act. Under EPA's proposed Pesticides in Ground Water Strategy, states will be required to regulate the use of those pesticides most likely to contaminate ground water in order to insure the continued availability of those pesticides. Nebraska is the only state that could not qualify to administer the proposed EPA pesticide regulations because Nebraska does not currently administer the FIFRA user certification and enforcement program. This article examines current agrichemical management policy options.

FIFRA assumption

Since 1976 several bills have been introduced in the Nebraska Unicameral to assume FIFRA administration; none have been passed. LB161, which would have authorized the Nebraska Department of Agriculture to administer user certification and pesticide enforcement programs, was approved by the Agriculture Committee in 1989 but was not adopted by the Unicameral. A similar bill, LB349, was introduced this year but remains in committee. Enactment of LB349 or similar legislation is necessary for Nebraska to assume administration of EPA's Pesticide Strategy. However, it is only the first step. Additional legislation would be required to authorize the state to prepare and implement state pesticide management plans.

Pesticide management plans

EPA's Pesticide in Ground Water Strategy will require eligible states to prepare pesticide management plans to identify how states will prevent pesticides from contaminating ground water. Under these plans states will:

(1) identify areas vulnerable to contamination from pesticide application;

(2) identify pesticides most likely to contaminate ground water;

(3) require additional applicator training and reduced application rates in vulnerable areas; and

(4) require reduced application rates or use bans when pesticides are detected in ground water.

These responsibilities would probably be assigned to the Nebraska Department of Environmental Control alone or in cooperation with the Nebraska Department of Agriculture. Local natural resources districts could be involved in implementing pesticide use restrictions.

Program funding

A major issue regarding state FIFRA assumption is program funding. Several states finance pesticide management programs with pesticide registration fees. Some states tax pesticides and fertilizer to generate pesticide program funding. In Iowa, fertilizer is taxed $0.75/ton (82% actual nitrogen solution), while pesticides are subject to registration fees and sales taxes of three-tenths of one percent. Similar taxes may be needed in Nebraska to pay for ground water quality protection programs.

Nebraska's options

Nebraska can choose not to adopt its own FIFRA program, and wait to see whether the EPA does ban any pesticides found to contaminate ground water in Nebraska. If the EPA does issue a ban, atrazine would probably be among the first pesticides affected. This would require many Nebraska farmers to change their pest control practices. The larger issue is whether Nebraskans want the state to regulate pesticide use and training to ensure a safe and drinkable supply of ground water.

J. David Aiken
UNL Water and Agricultural Law Specialist

The next issue of *IPW News* will feature a story comparing pesticide training and regulation programs in three neighboring states and in Nebraska.