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INSECT, PLANT DISEASE, & WEED SCIENCE NEWS [No. 91-24] [Oct. 11, 1991]

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Insect Science Plant Disease Weed Science NEWS

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

No. 91-24 Oct. 11, 1991

In this issue

PLANT DISEASE

Maize chlorotic virus found early

Maize chlorotic mottle virus was found in a corn field in the Platte River lowlands south of Cozad in Dawson County in mid September. This establishes a new county record for the virus. During the same survey trip, this virus also was found in three fields south of Eustis in Frontier County, in one field northwest of Elwood, and in one field northwest of Smithfield in Gosper County. These fields were brought to our attention by two crop consultants and a county cooperative extension agent who had suspected that the general decline in these fields was due to either MCMV or corn lethal necrosis (CLN) based on leaf and ear symptoms. Subsequent virus assays by Stan Jensen and Les Lane with ELISA and gel electrophoresis confirmed maize chlorotic mottle virus. No other viruses were detected.

These fields are suffering yield losses, and in three cases, losses will be significant. This represents the first confirmed reports of significant yield losses in farmers' fields resulting from infection with maize chlorotic mottle virus alone. Usually, such high losses only result from corn lethal necrosis which is a dual infection of maize chlorotic mottle virus and maize dwarf mosaic virus strain B or wheat streak mosaic virus. Another private crop consultant recently submitted samples from south central and central Gosper County which also were positive for only maize chlorotic mottle virus. These fields in Frontier, Gosper, and Dawson counties represent areas where growers previously did not have to be too concerned about maize chlorotic mottle virus or corn lethal necrosis. It is very likely that these fields aren't the only ones in these areas infected with maize chlorotic mottle virus.

Control recommendations include crop rotation with nonhost crops (soybeans, milo) in combination with planting tolerant corn hybrids. Over 150 hybrids have been evaluated for their reactions to corn lethal necrosis during the past three years. These evaluations will be summarized and made available to growers later this fall through your area cooperative extension office, the Plant Pathology Extension Office in Lincoln at (402) 472-2559, or my office at the South Central Research and Extension Center at Clay Center, (402) 762-4437.

Ben Doupnik, Jr.

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

Ergot appearing in grain samples

The incidence of ergot in wheat and barley was higher in 1991 than usual. This was due to wet weather at the time of flowering which promotes infection by ergot, similar to that of scab. The ergot fungus overwinters as black, hard structures called sclerotia, or ergot bodies, on or near the soil surface or in stored grain that is to be used as seed. During late spring, these sclerotia germinate producing small, mushroom-like structures. These release spores which are carried by wind to the open flowers of susceptible grain and grasses. The infection process is aided by wet weather. Once in the flower's ovary, the fungus replaces the ovary with a sweet, sticky substance called honeydew. This honeydew contains spores of the ergot fungus. Insects that are attracted to the honeydew pick up the spores and carry them to noninfected heads. The honeydew stage matures into the sclerotia. With small grains, infection often begins in the grasses at field margins and spreads into the field.

Most ergot bodies are removed from seed by normal processing. However, in wheat some of the sclerotia will be the same size as the wheat kernel and will be difficult to remove. If a seed lot contains ergot, the seed should be planted at least 2 to 3 inches deep. This will prevent the spore-producing structures from forming next spring. Mowing bromegrass at field margins before heading will remove another potential source of inoculum. Ergot is very toxic to livestock **Do not use ergoty grain as livestock feed.**

John Watkins

Late season soybean diseases identified

Soybeans are subject to numerous diseases which usually are minor and unimportant late in the season. In Nebraska these include pod and stem blight, stem canker, anthracnose, and charcoal rot. Their significance increases, however, during stress years when infection occurs earlier than normal and weather favors their development. These diseases are present this year, and charcoal rot may be more severe than usual. Be alert to the signs and symptoms of these late season soybean diseases.

Pod and stem blight. Infected plants develop many small, black specks (fungal fruiting bodies) in straight rows along the stem or scattered on dry, poorly developed pods. Infected seeds are dull, shriveled, often cracked and may be partially covered with a white, moldy growth.

Stem canker. Girdling cankers that are dark, reddish-brown and then tan form on the stem at the base of a branch or leaf petiole. Numerous small, black fungal fruiting bodies develop in the sunken cankers but these are **NOT** arranged in straight rows (as they are in the pod and stem blight disease).

Anthracnose. Indefinite, reddish to dark-brown blotchy areas develop on stems and pods. Later these blotchy areas develop fungal fruiting bodies that look like miniature pin cushions that contain black spines. These structures are easily seen with a 10X hand lens or magnifying glass.

Charcoal rot. Infection occurs through the roots and develops in the upper tap root and lower stem tissues. The epidermis of the lower stem/tap root can be easily rubbed off, revealing small, black fungal bodies called sclerotia. These may be so numerous that they give the tissues a grey-black color resembling a sprinkling of powdered charcoal. If the lower portion of the plant is split open, black streaks will appear in the woody part.

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IPW News

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Lisa Brown Jasa, Editor

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Plan early harvest if stalk rot is evident

Stalk rot is becoming more obvious in the field as corn approaches full maturity. Stalk breakage is still fairly low in most fields surveyed last week, but many plants dug up and examined showed evidence of root deterioration (rot) and stalk weakness. Further development in the lower internodes can occur rapidly, causing the stalk to lose structural strength that could lead to lodging problems.

Growers and other crop observers should be alert to symptoms and ready to harvest the more severely affected fields as soon as possible. It can become a race against time to harvest the crop before weakened stalks begin to lodge and break. If a significant danger of lodging exists, growers should consider harvesting when the grain is mature (24-26% kernel moisture content) and then drying it to safe grain storage levels. Although this involves an additional expense, it may outweigh the value of the grain which might otherwise be left on the ground if extensive lodging occurs.

David Wysong

Stem, root diseases (Continued from page 136)

Disease management strategies include plowing under infected residue where erosion is not a problem, rotating soybeans with other non-host crops, using high quality certified seed, planting seed with a fungicide seed protectant, and not overplanting.

David Wysong

Weed Science

Fall is optimum time for weed control in alfalfa

Fall is an excellent time to control weeds in established alfalfa. Fields that were weedy this year will almost certainly be weedy again next year unless you take preventative measures. Often a problem may not become evident until the alfalfa "greens up" in spring when it is too late for most herbicides. This year get a jump on the problem.

For alfalfa established one year or longer, Karmex, Lexone, Sencor, Sinbar and Velpar are available. These herbicides control both winter annual grasses and broadleaf weeds including downy brome and pennycress. Karmex is best suited to low organic matter soils. Treat either in late fall or early spring. Any of the herbicides can cause alfalfa injury on soils containing less than 1% organic matter.

Butyrac or Butoxone (2,4-DB) can be used to control pennycress and other mustards in both established alfalfa and new seedings where plants have at least two trifoliolate leaves. These herbicides should not be used where temperatures will drop to 40°F within three days after application. Buctril is also effective under these situations and can be used on new seedings, but should not be used if temperatures are above 70°F.

If downy brome is a problem in alfalfa seeded last spring or summer, Kerb can be applied after late October. It controls winter annual grasses and can be used on both this year's seedings and older stands of alfalfa. In established alfalfa, downy and other annual bromes are most economically controlled with Sencor or Lexone.

Alex Martin
Bob Stougaard

Control alfalfa now and no-till in 1992

Eventually alfalfa stands become unproductive and the land must be rotated to another crop. Plowing is an expensive and sometimes not completely effective way of killing alfalfa. Herbicides are more economical than plowing, very effective, and leave the soil less subject to erosion. An economical, consistent alfalfa control treatment combines 1 quart 2,4-D (4 lb/gal) + 0.5 pint Banvel per acre. The herbicide approach will cost $6 an acre plus application costs compared with $10-$15 per acre for plowing.

Fall is an excellent time to kill alfalfa with herbicides in preparation for next year's row crop. Make sure the alfalfa has at least four inches of "healthy" top growth. Next year a row crop can be planted no-till or with minimum seedbed preparation.

Alex Martin
Bob Stougaard

Winter meetings offer opportunities

Crop Protection Clinics

The schedule for the 1992 Crop Protection Clinics has been set. The clinics will continue with their format of having 15-minute presentations followed by questions. Entomologists, plant pathologists, weed scientists and soil scientists from the University of Nebraska-Lincoln will present the latest information.

The dates and locations for the 1992 Crop Protection Clinics follow. For more information about the meetings call the Extension agent where the meeting is to be held.

January 7	Lincoln, Lancaster County Extension Office
January 8	Fremont, Holiday Lodge
January 9	Norfolk, Villa Inn
January 10	Auburn, Arbor Manor
January 14	Broken Bow, Elks Club
January 15	Hastings, Holiday Inn
January 16	Deshler, Legion Club
January 17	York, Chances "R" Restaurant
January 21	Scottsbluff, Panhandle Research and Extension Center
January 22	Ogallala, Holiday Inn
January 23	Holdrege, 4-H Building

Alex Martin
Bob Stougaard

Crop Pest Management Update

The 1991 Crop Pest Management Update conference will be Dec. 3-4 at the Ramada Inn in Kearney. This conference is designed to provide agricultural professionals the latest information about field crop pest management. The intended audience includes agrichemical and fertilizer dealers, commercial applicators, crop consultants, farm and ranch operators, farm lenders, extension agents, conservation officers, and seed company representatives. The many topics on the program include: the University of Nebraska's pest management research updates, economic thresholds and IPM, biological control of pests, pesticides and water quality, health effects of pesticide use, and the use of weather data in pest management.

The meeting will begin at noon Dec. 3 with lunch and conclude at 3 pm Dec. 4. The registration fee of $75 ($100 after Nov. 20) includes a copy of the proceedings, two lunchs, one dinner, and refreshments. A program summary and preregistration forms can be obtained from your local extension office or by contacting my office. Rooms are available at the Ramada Inn at a discounted price for this conference and lodging reservations should be made directly with the motel by calling (800) 248-4460.

I look forward to seeing you at CPMU in December!

Steve Danielson

Agronomy research highlights

A one-day conference focusing on current developments in agronomy will be held Nov. 7 at the Nebraska Center at 33rd and Holdrege streets on the UNL East Campus. The event will feature formal talks, poster presentations and demonstrations by UNL faculty. For more information contact:

Alex R. Martin, Department of Agronomy, 362 Plant Science Building, University of Nebraska-Lincoln, Lincoln, NE 68583-0915. Phone: (402) 472-1527

Alex Martin

INSECT SCIENCE

Consider your needs, crop consultant's expertise

As growers review this past season, they might consider whether they would benefit from hiring a crop consultant in 1992. Regular monitoring of field conditions is important to acquire all the information needed to make the best decisions regarding pest management, fertility management and irrigation scheduling. However, many growers don't have the time, labor or training to collect this information and interpret it for themselves. An alternative is to contract with a crop consultant.

A new NebGuide (G91-1031, *How to Hire a Crop Consultant*) describes what to consider when hiring a crop consultant. Like any business decision, it pays to shop around and ask questions before contracting with a consultant. Consider these points:

— Find out about the individual's technical qualifications, particularly in the types of services you are seeking. College level training in crop related disciplines such as irrigation engineering, agronomy, plant physiology, entomology, plant pathology, weed science and agricultural economics is highly desirable. Field experience on the job

(Continued on page 140)

Worksheet to compare services and prices of consultant services

General background

	Consulting Service #1	Consulting Service #2
Years experience		
College degree and major field of study		
Certification		
References available		

Weed, disease and insect scouting

	Yes	No	Cost $	Yes	No	Cost $
Weekly field visits						
Weekly written reports that include:						
sampling sites and dates						
beneficial and damaging insect counts						
plant damage estimates						
crop development stage						
economic threshold analysis						
management options						
Scouts for weeds with field map						
mid-season and preharvest						
End of season summary						

Fertility management

Field history completed on each field including manure applications, previous crops, land leveling					
Soil sampling conducted per each 20-40 acres					
Uses soil survey and field history when choosing where to sample					
Takes soil samples to 24-36 inches in continuous corn fields for residual nitrate					
Provides options as to where samples can be sent to be analyzed, and which interpretations to use in making recommendations					
Samples irrigation water for nitrate levels and adjusts recommendations if necessary					
Credits any manure or previous crop in making recommendations					
End of season summary					

Irrigation management

Evaluates water distribution system					
Monitors					
Soil water content by:					
soil probe					
soil moisture blocks					
tensiometers					
Provides weekly written report					
Includes: sampling location					
available water					
irrigation recommendations					
End of season summary					

Equipment adjustment/calibration

Pesticide applicators					
Injection pumps					
Fertilizer applicators					
Irrigation pumps					
Planters					
Combines					

Corn rootworm insecticides evaluated

The following data are from corn rootworm insecticide performance studies conducted in 1991 by Lance Meinke at UNL's Agricultural Research and Development Center near Mead. 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. Treatments which resulted in root ratings of 3 or less would be expected to provide commercially acceptable levels of root protection against corn rootworms.

The planting-time and cultivation-time plots were planted May 1. Planting-time treatments were applied either in-furrow (I), as a 7-inch band (B) over the row and in front of a press wheel or as a 7-inch band over the open seed furrow (TB). Cultivation treatments were applied in a 7-inch band on June 4 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

Planting time applications

Insecticide	*Rate/Placement oz AI/1000 ft*		*Mean Root Rating (1-6 scale)*	
Counter 20CR	1.2	B	2.00	a
Lorsban 15G	1.2	TB	2.05	ab
Counter 20CR	1.2	I	2.15	a-c
Aztec 2.1G	0.14	B	2.15	a-c
Counter 20CR	0.9	I	2.25	a-c
Counter 15G	1.0	I	2.25	a-c
Counter 20CR	1.0	I	2.30	a-c
Aztec 2.1G	0.14	I	2.30	a-c
Force 1.5G	0.12	TB	2.30	a-c
Counter/Thimet 20G	1.2	B	2.30	a-c
Counter 15G	0.9	I	2.35	a-d
Counter 15G	1.2	I	2.35	a-d
Force 1.5G	0.12	I	2.40	a-d
Counter 20CR	1.0	B	2.40	a-d
Dyfonate II 20G	1.2	TB	2.40	a-d
Counter 15G	1.2	B	2.40	a-d
Counter 20CR	0.9	B	2.40	a-d
Counter 15G	0.9	B	2.45	a-e
Counter 15G	1.0	B	2.45	a-e
Thimet 20CR	1.2	B	2.50	a-e
Holdem 20G	1.2	B	2.55	b-e
Holdem 20G	1.61	B	2.60	c-f
Lorsban 15G	1.2	I	2.65	c-f
Fortress 5G	0.3	I	2.65	c-f
Thimet 20G	1.2	I	2.85	d-f

Planting time applications *(Continued)*

Insecticide	*Rate/Placement oz AI/1000 ft*		*Mean Root Rating (1-6 scale)*	
Counter/Thimet 20G	1.2	I	2.85	d-f
Furadan 15G	1.2	TB	2.95	e-g
Thimet 20CR	1.2	I	3.10	fg
Thimet 20G	1.2	B	3.40	g
Untreated			4.10	h
Untreated			4.95	i

First cultivation applications

Insecticide	*Rate (oz ai/1000')*	*Mean Root Rating (1-6 scale)*	
Counter 15G	1.2	2.00	a
Furadan 15G	0.9	2.00	a
Counter 20CR	1.2	2.26	a
Dyfonate II 20G	1.2	2.33	a
Lorsban 15G	1.2	2.40	a
Fortress 5G	0.3	2.46	a
Thimet 20G	1.2	2.46	a
Aztec 2.1G	0.14	2.53	a
Untreated		3.80	b

Planting time standards

Counter 15G	1.2	I	2.00	a
Dyfonate II 20G	1.2	B	2.26	a

Hiring a consultant *(Continued from page 138)*

and a farming background also are important. Prospective consultants should be willing to share their backgrounds and provide documentation of their training.

—Ask some of the firm's existing clients about their degree of satisfaction with the firm and its pricing.

— Discuss with the consultant your philosophies and goals in crop production, attitudes toward risk, and attitudes toward making changes and adopting innovations. All are important ideas that should be openly discussed to ensure that you both have similar expectations and goals.

— Insist on a written contract detailing the types of services to be provided and the fees for these services.

Fees will vary with the level and type of service. A consultant may offer a range of fees dependent on the services requested (e.g., pest scouting, fertility and irrigation management). Use the worksheet on page 139 to evaluate the services offered by consultants in relation to your specific needs and the cost of those services.

Bob Wright