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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 94-24
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Eastern Nebraska wheat shows some yellowing

Field surveys and clinic samples of wheat seedlings in eastern Nebraska are showing a general yellowing of the older leaves. Yellowing in the field occurs as a random pattern. Individual plants show a general yellowing progressing from the older leaves upward. On most plants the youngest leaves are still green. The yellowing is not the mosaic pattern produced by soil-borne wheat mosaic nor the yellowing associated with barley yellow dwarf.

Examination of affected plants shows the roots and crowns to be healthy. Rust or tan spot, if present, are only in trace amounts. There is some evidence of light aphid feeding but not all plants nor all fields have aphids. Kansas reports some injury from false wire worm; however, I didn't find any evidence of chewing off of the roots in my surveys. Also, I did not find evidence of Hessian fly.

My best guess as to the cause of the yellowing is environmental stress and nitrogen deficiency. In all fields surveyed, there are only one to three crown roots per plant, and these are less than half an inch in length. Because of the limited root system and the dry conditions during the latter part of October, my diagnosis is that the plants are unable to take up sufficient nitrogen and along with showing some moisture stress. The symptoms may be worse in fields with corn, sorghum or soybean residue which may be tying up nitrogen. However, the symptoms also are present in wheat planted into clean tilled fields.

One-half to an inch of rain would certainly help with both the moisture stress and root development. Growers should keep a close watch on fields showing yellowing. To help determine the health of the plant, dig four or five plants and place them in a glass of water. If they are still healthy, then new roots will develop from the crowns. Another procedure would be to pot up a few wheat plants in potting soil, fertilize and water the them, and see if that doesn't stimulate new growth and better color.

John E. Watkins
Extension Plant Pathologist

Wheat disease reported in Kansas

Wheat diease was noted in a wide area of west central Kansas, according to the Nov. 1 *Plant Disease Survey Report*. Leaf rust was found in 11 of 23 fields. Infection ranged from a few scattered pustules to fields with incidences of five percent.

Speckled leaf blotch also was found in west central Kansas. Infection was again light but

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Crop and Pest Management Update Nov. 29-30

This year's Crop and Pest Management Update conference will be Nov. 29-30 at the Ramada Inn in Kearney. The program begins with a noon luncheon on Tuesday and ends at 3 p.m. Wednesday.

Among the topics are: integrated crop management, larval corn rootworm management, B.t. transgenic corn research and developments, herbicide resistant crops and weeds, and an update on regulatory aspects of the Nebraska Department of Agriculture.

For more information about the program or agenda contact Steve Danielson at (402) 472-2125. The $80 preregistration fee includes two luncheons, a steak dinner, refreshments, and a proceedings. To preregister by Nov. 21, send $80 per person in the form of a check made out to CPMU to Ralph Anderson, Buffalo County Extension Office, 1400 E. 34th St., Kearney, NE 68847.

Steve Danielson
Extension Entomologist

Inside

Conservation compliance deadline nears

The new year is rapidly approaching and Jan. 1, 1995 marks the deadline for meeting conservation compliance requirements for erosion control. If you are not in compliance or still need to make some changes, you have a few weeks to visit your local Soil Conservation Service office.

The 1985 Farm Bill required that conservation compliance plans be developed and approved by 1990 and that the plans be fully implemented by 1995. Any agricultural land designated as "highly erodible" must have a fully implemented plan if a producer wishes to receive benefits from any USDA program.

Sediment is the No. 1 pollutant of Nebraska streams, lakes and rivers, but controlling erosion on hilly farmland is no easy task. Nebraska's farmers have been diligent in their effort to move toward compliance.

Nathan McCaleb, regional SCS soil scientist, reports that about 75% of highly erodible fields in the 12 Midwest states are in compliance.

Fal Bohaty, SCS District Conservationist in Lincoln, reported that conservation practices being used most frequently in eastern Nebraska are reduced tillage, no tillage and terraces with underground outlets or grassed waterways. Predominant practices being used in western Nebraska are drilled soybeans, increased plant population on irrigated land, and contour cropping.

These traditional practices usually meet compliance requirements, but in situations where it is extremely difficult to control erosion, producers can work with SCS District Conservationists and the local county committee to devise an alterntive conservation system, McCaleb said.

Another issue pertinent to erosion control is water quality. If cattle graze stocks, the field is used as a winter feedlot or manure is applied, potential water pollution problems and abatement techniques also must be considered. The SCS is concerned about waste managaement on highly erodible fields and is working with several Nebraska producers to address water quality requirements on highly erodible land.

The Soil Conservation Service will continue to conduct field checks for compliance. In addition, McCaleb cautions that SCS employees are required to report any field out of compliance that they might notice during routine travel in the county.

"On any given day, a field can be determined out of compliance even if it is not a part of the required field checks," said McCaleb. If minor violations are found, the producer may have a bit of flexibility to get back in compliance, but don't push your luck.

The best bet for erosion control is to error on the conservative side and keep a little extra soil on your hillside. It will keep our streams cleaner and taxes lower, increase soild quality and help ensure that we havae productive farmland for generations to come.

Alice J. Jones
Extension Conservation
Tillage/Erosion Control Specialist

CROPWATCH

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Lisa Brown Jasa, Editor

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Crop rotations that facilitate control of winter annual grasses in winter wheat

Downy brome, jointed goatgrass, and volunteer rye are serious grass weeds in the winter wheat-fallow rotation areas of western Nebraska, especially where residue management is used for erosion control. Because the germination, growth, and development of downy brome, jointed goatgrass, and rye are similar to winter wheat, there are few effective control methods. Herbicides are not currently available to provide selective control of these grasses in winter wheat. Chemicals and tillage control these weeds during the fallow period, but sufficient seed usually remains to reinfest the following winter wheat crop. Although plowing provides excellent control of these weeds, soil conservation concerns limited the use of this option. An experiment was conducted at the High Plains Agricultural laboratory near Sidney to investigate six dryland cropping systems -- continuous winter wheat, winter wheat-fallow with fall tillage, winter wheat-fallow with fall applied herbicide, winter wheat-fallow-fallow, winter wheat-sunflower-fallow and winter wheat-proso millet-fallow — and a winter wheat fallow with fall tillage check containing no weeds.

Winter annual grass weed counts were made in each plot containing winter wheat during the month of April. Weed pressure in 1994 was greater than in 1993. This can probably be explained by differences in fall precipitation between 1992 and 1993. August 1992 was cool and wet, allowing for excellent germination and emergence of the winter annual grasses prior to wheat seeding. We were able to kill this first flush of weeds will tillage prior to seeding. After wheat seeding, the fall was warm and dry and very few additional weeds germinated in the growing winter wheat canopy. August 1993 was very similar to August 1992, however, unlike 1992 the weather after seeding remained cool and wet. This apparently allowed additional winter annual grass germination to occur within the winter wheat canopy. Neither year was a worse case scenario, that is a warm, dry August followed by a cool, wet period after seeding.

The following is a brief look at the weed count data from 1993 and 1994 (see *Table 1*).

Statistical analysis of the data averaged over both years and all three weeds indicates a significant difference between continuous winter wheat and all other systems. Basically, continuous winter wheat becomes a disaster within three years if any one of these weeds are present. There was also a significant difference between the two-year and three-year systems with the three-year systems providing better control of the winter annual grasses. However, the systems behaved differently in 1993 and 1994. It is likely that these differences were the result of fall weather conditions, as stated previously.

In 1993, low weed counts

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Kansas report

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indicated recent weather conditions had been favorable to disease. Ness County had the greatest amount of disease pressure with a field of 10% incidence.

Wheat streak mosaic problems are often linked to fall infection of planted wheat. Symptoms of slight streaking, mosaic, yellowing, and curled leaves were found in a few fields in Lane, Logan, and Russell counties. Russell County had fields of two tiller wheat with 10% incidence along the field margins. During the next few weeks if good weather prevails, a better picture of wheat streak mosaic infection should develop.

Kansas Department of Agriculture

Table 1. Weed count data average over 1993 and 1994.

*Cropping system**	*Downy brome*	*Jointed goatgrass*	*Rye*
	Number of plants per square yard		
CW	176	108	148
WW-Ft	0.1	8.6	2.2
WW-Fh	0.2	11.8	3.7
WW-F-F	0.1	1.4	0.1
WW-SF-F	0.2	0.7	0.2
WW-P-F	0.3	0.9	0.1

*Cropping system abbreviations: CW, continuous winter wheat; WW-Ft, winter wheat-fallow with fall tillage; WW-Fh, winter wheat-fallow with falll herbicide; WW-F-F, winter wheat-fallow-fallow; WW-SF-F, winter wheat-sunflower-fallow; and WW-PM-F, winter wheat-proso millet-fallow.

Understanding risks of contaminants in water

Nebraska residents wanting scientific information on pesticides and risk assessment have a non-commercial, unbiased source they can turn to -- the University of Nebraska-Lincoln Water Center/ Environmental Programs Office.

A kit of materials has been prepared to help answer questions about pesticides, other water contaminants, and risks associated with contaminants. A recent national report called attention to five agricultural pesticides -- alachlor, atrazine, cyanazine, metolachlor and simazine -- which are discussed in the materials.

To obtain a kit, contact Bettina Heinz Hurst at (402) 472-3305 or write to UNL Water Center/ Environmental Programs, 103 Natural Resources Hall, P.O. Box 830844, Lincoln, NE 68583-0844.

It is important to keep the risks associated with pesticide active ingredients in perspective. The mere detection of an active ingredient in drinking water does not constitute a risk. Its concentration must be considered.

Concentrations are typically measured in parts per million, parts per billion or parts per trillion. The concentrations are compared with the legally allowed maximum quantities called Maximum Contaminant Levels (MCLs). The EPA has established MCLs for substances such as pesticides, gasoline, antifreeze, or fertilizer that may be detected in public drinking water supplies. This testing is regularly and rigorously done. If a substance is detected in a public drinking water supply at a level above the maximum contaminant level, the public is notified and the problem is corrected.

Today, more than ever before, tecnological changes have made it possible to detect tiny concentrations of substances in water. It can be difficult to comprehend how small these measurements really are. The Alliance for a Clean Rural Environment prepared the following examples:

If a coffee drinker would stir a teaspoon of sugar into a cup of coffee, that concentration would be about 1 part of sugar to 48 parts of coffee. One part per billion is equal to one-half teaspoon of sugar in one Olympic sized swimming pool. One part per trillion is one grain of sugar in an Olympic-sized pool.

In terms of time, one part per million is equal to one second in 12 days, one part per billion is one second in 32 years, and one part per trillion is one second in 320 centuries.

Nebraska is fortunate to have good quality drinking water. Primary contaminants of concern detected in drinking water are nitrate-nitrogen from natural and synthetic sources not pesticides.

The good news is that with regular monitoring of drinking water, the ability to detect parts per million, billion, or trillion offers the opportunity to spot potential contamination long before the point of danger. Being able to detect potentially harmful substances at concentrations well below the threshold of danger assures ample time to correct situations that might eventually lead to problems. Nebraska's farm producers and gardeners share the need to use pesticides and fertilizers responsibly

Larry Schulze
Extension Pesticide Coordinator

Herbicide chemistry workshop available

Herbicides have allowed the farmer and rancher to control weeds at a minimum cost. While most producers, consultants, and agribusiness personnel know which herbicides to use for specific weed situations, many may not fully understand why a particular chemical does or does not work.

At a time when environmental and ecological concerns are at the forefront of the agricultural agenda, basic knowledge of herbicides and their chemical properties is critical to making weed management decisions.

The six-week Herbicide Chemistry and Mode of Action Workshop will provide you with clear and concise information to help you make wise, environmentally friendly, and ecologically sound weed management decisions.

The registration fee is $75 and includes refreshments, reference materials and the Extension publication, 1995 Guide for Herbicide Use in Nebraska. Register early since enrollment is limited.

The workshop will be held on Fridays, Jan. 20 and 27, February 3, 10, 17, and 24 at Columbus Central Community College with a satellite downlink site at College Park in Grand Island.

For more information contact David Holshouser, Northeast Research and Extension Center, Box 111, Concord, NE. 68728-0111 or call (402) 584-2261.

David Holshouser
Extension Weeds Specialist

Crop rotations (Continued from page 165)

resulted in no differences being observed between systems, with the exception of the continuous winter wheat system. In 1994, downy brome weed counts were still low, and no differences were observed between systems for downy brome weed counts, with the exception of the continuous winter wheat system.

Jointed goatgrass had the highest weed counts in 1994 and consequently exhibited the greatest differences between systems. Jointed goatgrass is known to have more seed dormancy than either downy brome or rye, therefore, the higher jointed goatgrass weed counts with all systems except the continuous winter wheat is understandable. As in the overall analysis, the three-year rotations were better than the two-year rotations in controlling jointed goatgrass. Within the three-year systems, the winter wheat-sunflower-fallow system had a slight advantage over the other systems. Within the two-year systems, the winter wheat-fallow system with tillage only (includes a fall tillage operation) appears to have been slightly better than winter wheat-fallow system with chemical and tillage (atrazine replaces fall tillage). The fall tillage probably stimulated germination of jointed goatgrass in fallow and consequently depleted a larger portion of the soil seedbank reserve prior to winter wheat seeding.

The results for rye in 1994 are very similar to jointed goatgrass, but no differences between the three-year systems were evident.

Cropping systems did not differentially affect winter wheat grain yields in 1994. Winter annual grass populations were apparently too low in the two- and three-year systems to noticeably affect grain yields. Winter wheat grain yields averaged 34 bushels per acre in 1994. Grain quality factors, i.e. dockage and foreign material, were impacted by cropping system effects on winter annual grass populations in 1994. In 1993, low weed populations and hail prevented observation of system effects on grain quality. Dockage levels in 1994 exceeded 1% only in the two-year systems containing jointed goatgrass (*Table*). The average dockage level for all other weed and system treatments was < 0.3%. Foreign material levels were elevated in the two-year systems containing rye and jointed goatgrass (*Table* 2).

Rye contributed the greatest amount to foreign material levels in the two-year systems, followed by jointed goatgrass. Grain from jointed goatgrass and rye infested lots in the two-year systems were reduced to at least U.S. grade no. 3 as a result of foreign material contamination.

Drew J. Lyon, Extension Dryland Crops Specialist
Panhandle R&E Center, Scottsbluff
David D. Baltensperger
Extension Crop Breeding Specialist,
Panhandle R&E Center, Scottsbluff

Jointed Goatgrass Conference

Winter wheat producers interested in crop rotation and other means of controlling jointed goatgrass should plan on attending the Central Great Plains Jointed Goatgrass Conference. Weed scientists from the University of Nebraska, Kansas State University, Colorado State University, University of Wyoming, and the USDA-ARS will discuss the origins, biology, and control of jointed goatgrass in winter wheat. The Conference is scheduled for Colby, KS at the Ramada Inn; Ogallala, NE at the Holiday Inn; and Sterling, CO at the Ramada Inn on February 21, 22, and 23 respectively. Contact your local county Extension Educator or Drew Lyon at (308) 632-1266 for further details concerning this conference.

Table 2. Effect of dryland cropping system on winter wheat grain dockage and foreign material level as a result of winter annual grass control at Sidney, NE in 1994.

*Cropping system**	*Dockage*			*Foreign material*
	Downy brome	*Jointed goatgrass*	*Rye*	
	%			
WW-Ft/nw	0.2	0.2	0.2	0.3
WW-Ft	0.4	1.3	0.4	1.4
WW-Fh	0.2	1.6	0.2	2.2
WW-F-F	0.2	0.2	0.1	0.3
WW-SF-F	0.4	0.4	0.3	0.3
WW-PM-F	0.4	0.4	0.4	0.4
LSD (0.05)	NS	0.6	NS	0.8

*Cropping system abbreviations: WW-Ft/nw, winter wheat-fallow with fall tilalge and no weeds; WW-Ft, winter wheat-fallow with fall tillage; WW-Fh, winter wheat -fallow with fall herbicide; WW-F-F, winter wheat-fallow-fallow; WW-SF-F, winter wheat-sunflower-fallow; and WW-PM-F, winter wheat-proso millet-fallow.

Fort Kearney EPU offers winter meetings and educational opportunities

Agriculture Competitiveness and Profitability Cattlemen's Satellite Shortcourse: Dec. 6 and 20, Jan. 3, 17, 31, Feb. 14 and 28, March 14 and 28, and April 11, at 8 p.m., Extension Center, Kearney

Farm rental rates and arrangements for 1995: Dec. 7, 9:30 a.m., Fairgrounds, Minden; Dec. 8, 9:30 a.m., Extension Center, Kearney; Dec. 8, 1:30 p.m., Ag Center, Holdrege

Crop Protection Clinic: Jan. 13, 9 a.m., Ag Center, Holdrege

Beef Management Seminar: Jan. 17, 9-3, Fairgrounds, Minden, free prime rib lunch. Preregistration required.

Ecofarming Conference
Jan. 18, Ag Center, Orleans

Whole Hog Days, Jan. 24, Extension Center, Kearney

New Crops and Marketing Alternatives: Jan. 25, 1 p.m., Elm Creek Community Center

No-till and Reduced Till Workshop: Jan. 26, 10-3 p.m., Community Building, Bertrand

Corn Exposition: Feb. 7-8, Buffalo County Exhibit Hall, Kearney

Computer Financial Management Workshop: Feb. 10, 1:30 p.m., Holdrege Senior High School Computer Lab; preregistration required.

Corn Rootworm Beetle Management Workshop: March 1, 1:30 p.m., Ag Center, Holdrege

Converting CRP to Grazing and/or Haying: March 6, 7 p.m., Cornhusker Club, Oxford

Tree Care Workshop: March 9, Minden

Entrepreneurial Opportunities in Ag Conference: March 17-18, Holiday Inn, Kearney

Lawn Care Workshop
April 4, 7:30 p.m., Civic Center, Elwood
April 6, 7:30 p.m., Ag Center, Holdrege

Tractor Driving Safety Course: April, specifics to be announced later

EPA Private Applicator Training for Restricted Use Pesticides
Jan. 10, 9 a.m., Civic Center, Elwood
Feb. 1, 1:30 p.m., Harlan County Courthouse Meeting Room, Alma
Feb. 9, 9 a.m. and 1:30 p.m., Ag Center, Holdrege
Feb. 16, 7 p.m., Community Building, Bertrand
Feb. 22, 1 p.m., Fairgrounds, Minden
Feb. 23, 1 p.m., Fairgrounds, Franklin
March 7, 1 p.m., Extension Center, Kearney
April 6, 7 p.m., Extension Center, Kearney

Chemigation training: March 16, 9 a.m., Ag Center, Holdrege

Youth Water Jamboree: April 25 and 26, 9:30 a.m., South Central 4-H Center, Alma, for fifth grade students. Preregistration required.