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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 96-14
June 28, 1996

Disease update

Take-all, chaff, scab evident in wheat

Take-all has caused significant losses in some continuous wheat in southeastern and south central Nebraska. The wet weather in May and the wheat after wheat sequence were the contributing factors in take-all development. The take-all fungus invades roots causing starvation and drought to the plant, often resulting in premature death. In a field take-all appears as circular or irregular patches of bleached, prematurely killed plants. The most characteristic sign of take-all is the development of a superficial, shiny black mat of fungus mycelium beneath the lowest leaf sheath that extends to the crown.

Crop rotation of two or three years will generally reduce take-all but will not eliminate it. Oats, corn and sorghum are suitable alternative crops. In general legumes are suitable alternatives; however, sometimes take-all may be severe in wheat following

alfalfa or soybeans.

Symptoms of **black chaff** caused by the bacterium *Xanthomonas campestris* pv. *translucens* are being misdiagnosed as Septoria leaf blotch. Black chaff symptoms on the leaves progress from water-soaked streaks to tan blotches. It is this blotch symptom that is causing the confusion. Other symptoms associated with black chaff include dark streaks and blotches on the glumes, alternating bands of healthy and diseased tissue on the awns and dark purple lesions on the neck between the head and flag leaf. When this neck area is girdled the head dies

prematurely. No chemicals are available for controlling black chaff in the field. The most effective control is through the use of clean seed.

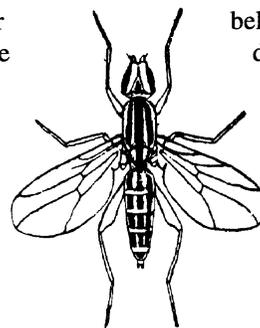
Scab was found on samples sent to the UNL Plant Diagnostic Clinic and in the variety plot north of Lincoln. Individual florets on diseased heads were ripening prematurely and showed the salmon-colored mycelial ring at the base of the florets or along the edge of the glumes. Symptoms will continue to develop until harvest. Incidence and severity will vary among fields.

John E. Watkins
Extension Plant Pathologist

Scattered white heads in wheat may be wheat stem maggot's work

Farmers watching their ripening wheat fields over the past few weeks have noticed scattered white heads, the telltale sign of the work of the wheat stem maggot. Typically, the wheat stem remains green below the uppermost node. Close examination reveals the presence of a green maggot feeding on the stem or a green puparium.

The maggot is the larva of a small, yellow and black-striped fly, about 1/5 inch long,



Wheat stem maggot

belonging to the family Chloropidae. The flies can infest the wheat in spring or fall, but usually the spring infestation is the one that attracts attention. Damage rarely exceeds 1-2% of the heads, however, loss is overestimated because it is so visible. Due to its unpredictable nature and erratic appearance, there would be little return on any investment in chemical treatment.

Dave Keith
Extension Entomologist

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Crop/pest updates

European corn borers

Young European corn borer larvae are likely feeding in the whorl of corn plants in scattered areas throughout most of southern Nebraska. I was in Saunders County last week and had no trouble finding live first and second instar larvae in plant whorls in the taller corn, however the percent of the plants infested in the fields was quite low.

Extension educators reported that light traps in Hamilton and Buffalo counties are still catching significant numbers of moths. Our light trap here at the Northeast Center, near Concord has yielded very few moths to date. Continue to follow recommendations relating to scouting and decision making as outlined in the two previous *CropWatch*'s.

John Witkowski
Extension Entomologist
Northeast District

Pesticide resource

EXTOXNET, derived from EXtension TOXicology NETwork, provides objective, science-based information on pesticide toxicology and environmental chemistry. Information in the InfoBase is fully searchable and selectively retrieveable. The address on the World Wide Web is <http://ace.orst.edu/info/extoxnet>. It is sponsored by the University of California, Davis, and Oregon State, Michigan State, and Cornell universities.

Nitrogen on damaged corn

Will applying nitrogen to damaged corn as 28% nitrogen solution or ammonium thiosulfate solution hasten recovery and/or improve yield? Will applying ammonium thiosulfate reduce the potential for diseases?

Unfortunately, research results from applying ammonium thiosulfate and/or 28% nitrogen solution do not show any consistent benefit in disease suppression or yield increase. The

general consensus is that any benefit from applying nitrogen to hail damaged corn will be from correcting any nitrogen deficiency rather than improving recovery of the damaged corn or suppressing disease in the damaged plants. If there is not a nitrogen deficiency in the damaged field, applying nitrogen to the damaged crop may not produce an economic return.

K.D. Frank
Extension Agronomist

Perennial weed control

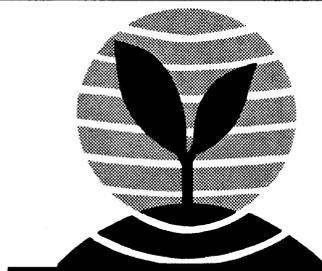
Normally, late June is the best time to treat broom snakeweed, vervain, goldenrod sagebrush, snow-on-the-mountain, western ironweed, and western ragweed. There is a tendency to treat too late rather than too early. A good guideline for most perennials is to mow or apply the

herbicide when weeds are in the early flower bud stage. Biennial thistles are an exception and should be treated in the rosette stage.

The most commonly used treatments are 2,4-D ester and a combination of 2,4-D and Banvel. Tordon is available for tough weeds and Crossbow is effective on woody plants. Grazing restrictions are minimal, with the exception of milking dairy animals.

Uneven terrain often makes a uniform herbicide application difficult on grazing land. A marking system helps eliminate missed strips. Use care when applying herbicides near sensitive crops, gardens, windbreaks, and farmsteads. Injurious drift can occur for 1/2 mile or more.

John McNamara
Extension Assistant-Weeds
Alex Martin
Extension Weeds Specialist



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Lisa Brown Jasa, Editor

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EPA changes agriculture requirements in the Worker Protection Standard

The Environmental Protection Agency has updated requirements associated with the Worker Protection Standard for agricultural pesticides. These new EPA requirements require agricultural employers to observe the following revisions:

Grace period for providing worker safety training. A five-day grace period has been established. The employer must assure that workers have received pesticide safety information before the sixth day of entry into a treated area where a restricted entry interval was in effect for 30 days.

Early entry restrictions for limited contact activities. The EPA allows an exception to early entry in pesticide treated areas to perform

certain limited contact activities. This exception allows workers to perform tasks which would result in significant economic loss if delayed and that result in minimal contact with pesticide-treated surfaces, for up to eight hours per 24-hour period during a restricted-entry interval. The exception does not allow entry into the treated area for the first four hours after the pesticide application. An example would be irrigation activities which could not have been foreseen and if delayed, would cause significant economic losses. However, irrigation activities cannot be performed early if the pesticide applied has a double notification requirement (oral warnings and posted signs).

Reduced restricted-entry intervals (REIs) for certain pesticides. The EPA will allow pesticide registrants to reduce the restricted-entry intervals from 12 hours to 4 hours on certain pesticides. About 114 active ingredients are currently subject to the reduced REIs. Many of the BT insecticide compounds fall into this category. The REI is the time immediately after a pesticide application when entry into the treated area is limited. **Important** — follow the REI as printed on the product label that is being used.

(Based on material from the EPA, NDSU Pesticide Quarterly-Vol. 14, No. 2, Utah Pesticide and Toxic News-Vol. 14, No. 4).

Larry Schulze
Extension Pesticide Coordinator

Downpours not reminiscent of 1993

Although air temperatures have averaged above normal during the past two weeks, severe thunderstorms continue to plague portions of the state. Severe flooding and hail damage to row crops have been reported over the northeast quarter of the state. Locations hardest hit from the recent storms include the Fremont/Wahoo and Hartington/Sioux City areas.

The local media have attempted to compare recent flooding to the extensive flooding over the northern and central United States during 1993. In reality, there are few similarities. In 1993, we came out of a wet 1992 with soil profiles so full they just couldn't hold more water. Rainfall in 1993 was nearly continuous from late April through July and covered the entire Midwest.

Rainfall was heavy in May this year, but there was ample room for absorption into soil profiles. There have been extreme rainfall events, but coverage has been more localized. Most of the flooding along the Missouri River is a combination of heavy

thunderstorms and excessive snow runoff in Montana, North Dakota, and South Dakota. In 1993, reservoirs along the Missouri weren't completely full and flow releases south of Yankton were reduced. Therefore, most of the flooding in 1993 was solely the result of thunderstorms. This year, the Army Corp of Engineers doesn't have that option and the result has been more flooding in low lying areas of the Missouri River and its feeder tributaries.

Even with the localized excessive rainfall events of the past two weeks, most areas of the state received average to below average rainfall. Spring planting is virtually complete as high temperatures and minimal rainfall across most areas of the state allowed farmers an average of five days suitable for field work during the last week.

Warmer temperatures have also promoted rapid crop development. It is doubtful that a prolonged period of above normal temperatures will quickly or completely make up for all of the spring planting delays. However, the

corn crop is now using an average of 0.15 inches of moisture a day and will approach 0.25 to 0.30 inches a day within the next few weeks. Producers should have a good idea at that time how effective the wet May was for building up their soil moisture reserves.

Short term forecasts reflect the movement of this ridge eastward as temperatures across most of the midwest should be above normal during the next two weeks, while precipitation is expected to be normal to below normal. Forecast models have failed to lock onto a temperature or precipitation trend for July. However, long lead models indicate that there is a tendency toward below normal temperatures over almost all of the corn belt from July through September. The area with the highest probability of below normal temperatures is located over eastern Iowa, northern Illinois, and southern Wisconsin. No trends for precipitation are indicated.

Al Dutcher
State Climatologist
Agricultural Meteorology

Consider surge irrigation to save water, runoff

Surge irrigation is the intermittent application of water in furrows using a two-way valve operated by an automatic controller. The wetting and soaking action from surging settles soil particles in the bottom of the furrow and may form a partial seal which reduces the intake rate of the soil. This should result in less infiltration on the partially sealed portion of the furrow and more water movement down the furrow with the next surge of water. This effect of surging is most prevalent on the first irrigation and decreases on later irrigations as the seal is formed.

On nearly level fields having soils with high infiltration rates, surge irrigation should improve irrigation efficiency. This improvement will reduce over-application on the upper end and gets water to the lower end more quickly. Since the lower end is watered sooner, the irrigation set may be shut off earlier, thus saving water. However, surge irrigation may not reduce the advance time of water down the furrow if the surges don't create the seal. In addition, if the field slope is so steep that it causes a rapid rate of advance or if the soil has a low infiltration rate due to soil texture, tight soils, or compacted layers, the effects of

surging will be reduced. In some cases on flatter fields, advance times may actually increase if the surface is not properly leveled and it has some low spots or reverse grades.

Even if the irrigation advance times are not reduced below those for continuous flow, surge irrigation still may have some benefits. Surge flow can be used to reduce runoff by using short duration surge cycles, or soak cycles, after the water has reached the lower end of the field. This results in a more uniform water application and improves irrigation efficiency.

Another advantage to surge irrigation is improved irrigation system management by using a two-set, automated furrow irrigation system. The surge valve switches the water flow automatically, alternating between the two sets. Compared to a conventional system, about 30% more gates are opened for the total of the two sets, half on each side of the surge valve. This results in a larger flow rate in each furrow than with a conventional system since fewer gates are open on the set that is flowing. This advances the water down the furrow faster to use the benefit of the surge system to save water with a reduced set time. The automatic operation makes two sets possible with one trip to the field once the controller is properly programmed. If double the number of gates are opened, the producer may not save water but still only has to return to the field half as often as compared to conventional systems.

By realizing a water savings, enough fuel and labor could be saved to expect the surge system to pay for itself in just a few years. In several Natural Resources Districts in Nebraska, the payback period is even shorter, thanks to cost-share programs for the purchase of surge valves. Contact your local NRD Office for information on this and other cost-share programs.

Paul Jasa
Extension Engineer

Set-aside offers good chance for weed control

If left unattended, set-aside acres can turn into a real weed problem next year. Ideal growing conditions, coupled with no tillage, on set-aside acres set the stage for excellent control of perennial weeds. Controlling perennial weeds successfully with herbicides depends on having the right growing conditions and chemical application at the right growth stage.

The flower bud through flower stages are ideal for treating perennial weeds with 2,4-D, Banvel, and Roundup. Canada thistle, field bindweed, hemp dogbane, and common milkweed on undisturbed sites are at or approaching these growth stages. Swamp smartweed will reach treatment stage later. Set-aside acres are an opportunity to deal with these weeds without involving a crop. Apply 1.5 quarts 2,4-D ester (4 lb/gallon) or 1 quart 2,4-D + Banvel. Curtail is particularly effective on Canada thistle. Where annual grass and broadleaf weeds are a problem, Landmaster, a combination of Roundup and 2,4-D amine, is effective. Use caution when applying herbicides to minimize the chance of spray drift damaging nearby vegetation. When temperatures exceed 90 degrees Fahrenheit, 2,4-D ester and Banvel can produce vapors that drift and damage sensitive broadleaf plants.

John McNamara
Extension Assistant -- Weed Science
Alex Martin
Extension Weeds Specialist

Crop condition

Winterwheat condition improved from the previous week and rated 5% very poor, 21% poor, 39% fair, 31% good and 4% excellent. The crop was turning color rapidly with 37% turning as of Sunday.

Corn condition rated 1% very poor, 3% poor, 17% fair, 60% good, and 19% excellent. Soybean planting was virtually complete as of Sunday. The crop was 91% emerged, compared with 75% in 1995.

Check preharvest intervals and crop height limits for rescue weed treatments

Corn/Sorghum

Large weeds (taller than 7 inches) may be suppressed or controlled in corn or sorghum with postemergence herbicides but performance is less consistent than with earlier applications. Crop injury and weed control are usually increased under excellent growing conditions. Banvel and 2,4-D can control fairly large broadleaf weeds under good growing conditions. Crop injury is a concern with Banvel and particularly 2,4-D with the later applications.

Avoid spraying over the whorl of corn or sorghum taller than 12 inches, if possible, especially with Banvel, Clarity and 2,4-D. The whorl acts as a funnel intercepting much of the herbicide resulting in increased crop injury and reduced weed control. With Banvel, Clarity, and 2,4-F, drop extensions should be used on corn or sorghum taller than 8 inches to reduce the quantity of herbicide intercepted by the whorl.

John McNamara

Extension Assistant--Weeds

Alex Martin

Extension Weeds Specialist

Preharvest interval/crop stage limits for postemergence herbicides in corn

<i>Herbicide</i>	<i>Preharvest interval or crop height limit</i>
Accent	24" broadcast, 36" directed
Atrazine	12"
Banvel	1 pt 8", 1/2 pt 36"
Basagran	none
Beacon	20" broadcast, pre-tassel directed
Bladex 90 DF	4th leaf
Buctril	pre-tassel
Buctril-Atrazine	12"
Clarity	8"
Exceed	20" broadcast, pre-tassel directed
Extrazine II	4th leaf
Laddok S-12	12"
Marksman	5th leaf
Permit	20" broadcast, pre-tassel directed
Pursuit (IR, IT Corn)	45 days
Resource	10 leaf
Scorpion III	8"
Sencor + Basagran	60 days
2,4-D	8" broadcast, pre-tassel directed

Preharvest interval/crop stage limits for postemergence herbicides in sorghum

<i>Herbicide</i>	<i>Preharvest interval or crop height limit</i>
Atrazine	12"
Banvel	15"
Basagran	boot
Buctril	pre-boot
Buctril-Atrazine	12"
Laddok	12"
Marksman	8"
Peak	12" broadcast, 24" directed
Permit	Layby
2,4-D	8" broadcast, boot directed

Soybeans

Most broadleaf weeds in soybeans taller than 6" cannot be consistently controlled with postemergence herbicides. Reason: there are no soybean herbicides that are as effective as Banvel, Clarity, and 2,4-D on large broadleaf weeds. Suppression of larger broadleaf weeds is available from several treatments.

Preharvest interval/crop stage limits for postemergence herbicides in soybeans

<i>Herbicide</i>	<i>Preharvest interval or crop height limit</i>
Assure II	80 days
Basagran	30 days for forage or hay
Blazer	50 days
Classic	60 days
Cobra	90 days
Fusilade	Bloom
Fusion	Bloom
Pinnacle	60 days
Poast Plus	90 days
Pursuit	85 days
Resource	80 days
Select	60 days
Scepter	90 days