2005

Crop Watch No. 2005-15, June 24, 2005

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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

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No. 2005-15, June 24, 2005

In western Nebraska

Wheat diseases prominent, likely to reduce yields

Wheat streak mosaic and stripe rust were the major wheat diseases identified in a recent field survey in the Panhandle and west central Nebraska. Of the two, wheat streak is the most widespread and damaging disease in the Panhandle. Stripe rust is making its presence strongly felt in west central Nebraska and in a few fields in the Panhandle. Both diseases undoubtedly will impact wheat yields and test weights in many fields.

The incidence of wheat streak mosaic is high in the southern Panhandle, particularly in Cheyenne County. A series of hail storms at this time last year resulted in an abundance of volunteer wheat. Curl mites, which vector the wheat streak mosaic virus, built up to very high numbers between then and emergence of the fall planted crop. Although some growers attempted to control the volunteer wheat, others did not, which significantly contributed to the problem. Extensive warm fall weather and good growth enhanced the spread of the mites in the fall-planted crop. Wheat in the northern Panhandle was impacted less by wheat streak mosaic with just isolated fields or areas showing mosaic. Some wheat streak mosaic was identified in southwest Nebraska, at levels similar to that in the northern Panhandle. This is probably one of the most extensive outbreaks of wheat streak mosaic in the past 20 years.

Any hail in the next 10 days will likely produce a volunteer wheat crop which, if not destroyed before fall planting, will contribute to wheat streak mosaic problems in the 2006 wheat crop. All hail storms in the next few weeks prior to wheat harvest should be monitored and the resulting volunteer wheat destroyed to prevent a recurrence of 2005. It is up to all growers affected to control their volunteer wheat not only to reduce the risk to their crop but to their neighbors as well. With wheat streak mosaic being a good neighbor is critical to keeping losses at a minimum.

Stripe rust is present everywhere in Nebraska, but is most acute in the west. A cool May combined with irrigation or rain created excellent conditions for stripe rust. Many irrigated fields were treated with a

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(Left) Severe stripe rust on the flag leaf of an infected wheat plant. (Above) Wheat leaf showing some wheat streak mosaic symptoms.

Inside

Ag briefs

Doug Anderson, Extension Educator in Nuckolls and Thayer counties: After a little moisture and sun the crops are showing a big growth spurt; however, soil moisture is now very low and we'll need continual rains to keep up. Irrigation season is in full swing and will likely last a while. Wheat harvest is on schedule, with some yields expected to be good and some not so good. Rust had been a problem, but the lack of moisture will likely have a bigger impact.

Corn should be about head high by the Fourth of July. Soybeans and sorghum have emerged and are about 4-6 inches tall.

Andy Christiansen, Extension Educator in Hamilton County: Crops are progressing well and pipe is being laid for furrow irrigation. We're finding painted lady caterpillars in soybean fields. Sentinel plots for Asian soybean rust are at the R2 stage. No rust yet.

Ralph Kulm, Extension Educator in Holt and Boyd counties: Two weeks ago some producers were talking about receiving too much rain, but haven't received any more rain since then. Those waiting for drying weather to finish the first cutting of alfalfa were pleased.

Potato leafhoppers have been a problem in some newly seeded alfalfa fields during the past 10 days with treatment being necessary in several cases. Producers are concerned about the potential effect of rust and other diseases on wheat yields.

Pastures look good, but so do the weeds. Those pastures that were badly damaged by drought and/or overgrazing during the past five years are especially having weed problems.

Gary Lesoing, Extension Educator in Nemaha County: Here and in surrounding counties, the warm dry weather this past week really helped the corn take off and grow. In general it looks much better than in previous weeks. The dry weather also allowed farmers to spray weedy soybean fields. Thousands of acres of soybeans were sprayed these last couple of weeks. It also was good hay-making weather and allowed farmers to get out andtake their second cutting of alfalfa.

Several fields of brome hay also were harvested. Wheat harvest is near and with the warm temperatures may begin the last part of this week. Several fields show high incidence of rust. Wheat yields are likely to vary widely.

USDA's Nebraska Agricultural Statistics Service: For the week ending June 19, warm and sunny conditions aided crop development and allowed hay harvest to progress. Due to widespread rain during previous weeks, weed control has become the primary producer activity in many areas. Rainfall averaged less than 0.5 inch in most areas; however, precipitation since April 1 continued above normal. Precipitation for the northern third of the state continued well above normal but in the southern third it was a few percentage points higher.

Wheat conditions remained stable and rated 7% very poor, 14% poor, 37% fair, 35% good, and 7% excellent. Fields were reported to be 99% headed, in line with last year and average. Forty-six percent of the fields were turning color, well behind last year at 76% and the average at 61%. One percent of the crop was ripe. Likely start of harvest was reported to be about one week away.

Corn condition rated 2% poor, 20% fair, 54% good, and 24% excellent. Conditions continue higher than last year and normal.

Soybean planting was completed, in line with last year and the average. Soybean emergence at 98% was ahead of last year and average at 96%.

Sorghum planting was at 96% complete, behind last year and the average at 98%. Eighty-three percent of the crop had emerged, behind last year at 93% and the average at 89%.

Oat condition rated 3% poor, 22% fair, 55% good, and 20% excellent. Eighty-one percent of the crop has headed, compared to 82% last year and 77% for the average.

Alfalfa conditions continued to improve and rated 1% very poor, 6% poor, 30% fair, 49% good, and 14% excellent. First cutting was 84% complete, behind last year at 89% and the average at 90%.

CROP WATCH

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In corn

Controlling late season weeds

With warmer weather finally here the corn is sure to start growing very rapidly. Many herbicide labels limit application to corn that is 12 inches tall or less. If your corn has exceeded that limit here are some rescue treatments that you can use for corn taller than 12 inches. Remember that most products control smaller weeds better; some herbicides won't have much impact on large weeds.

When deciding whether to spray, consider the potential for successful weed control and the chance of crop injury. The following list includes herbicides for late season corn and information on application timing. It is intended for use as a guide only. Always read and follow label directions.

Accent -- up to 36-inch corn. If corn is taller than than 20 inches, use drop nozzles

Aim -- up to 8 leaf corn (approx 30 inches)

Buctril -- Prior to tasseling

Callisto -- up to 8 leaf corn (approx 30 inches)

Clarity -- up to 36-inch corn. Use caution with nearby sensitive broadleaf crops. Use directed application if possible.

Dicamba -- up to 36-inch or 15 days before tasseling. Check label.

Distinct -- up to 24-inch corn. Use at 4 oz / A rate

Exceed -- up to 30-inch corn. Greater than 20 inches use drops

Glyphosate -- up to 30-inch corn. If greater than 24 inches use drop nozzles. Requires Roundup Ready corn If using Roundup Ready 2 corn up to 48 inches. If more than 24 inches tall, use drop nozzles

Hornet WDG -- spike to 36 inches use 2-5 oz
-- more than 20 inches, use drops

Liberty -- up to 36-inch corn; requires Liberty Link corn

Lightning -- 45 days before harvest B Requires Imi / Clearfield corn

Northstar -- up to 36-inch corn; if more than 20 inches, use drops

Option -- up to 36-inch corn; if greater than 16 inches, use drop nozzles

Priority -- up to approximately 30-inch corn (V8)

Roundup WeatherMax -- up to 30-inch corn; if greater than 24 inches use drop nozzles. Requires Roundup Ready corn If using Roundup Ready 2 corn, up to 48 inches. If the corn is traller than 24 inches, use drop nozzles.

Steadfast -- Up to 20-inch corn

2,4-D amine -- up to tasseling. Use drop nozzles for corn taller than 8 inches. Use caution with nearby sensitive broadleaf crops.

Yukon B -- up to 36-inch corn. Weeds 1-6 inches.

Brady Kappler, Weed Science Educator

Wheat diseases *(Continued from page 129)*

fungicide which in most, but not all, cases protected the flag leaves from severe rusting. If not controlled, it can cause early death of the flag leaf which will reduce the grain fill period and result in a lower yield.

Leaf rust, while present in Nebraska, developed late due to cool temperatures in May and will not have a significant impact on yield in most fields.

Other diseases noted in the western Nebraska survey were tan spot and scab. Scab was noted in one irrigated field in southwest Nebraska at a low incidence. Tan spot was present on lower leaves of many fields but had reached the flag leaf in only one field.

John Watkins
Extension Plant Pathologist

Emergency forages offer recovery option

We've seen it all this year -- drought, flash floods, hail, insects, and tornadoes. After disaster strikes, replanting a grain crop may be nearly impossible due to herbicide carryover or the late planting date. Annual emergency forage crops might be your only choice.

When considering this option, first review the herbicides previously applied and their potential effect on your replant crop. Many corn and milo herbicides will injure pearl millet and foxtail millet. Sudangrass, forage sorghum, and sorghum-sudan hybrids will tolerate moderate levels of atrazine. If the previously applied herbicide was Dual, Bicep, Cinch or a similar product, used safened seed. These sorghums also tolerate most herbicides labeled for use with grain sorghum.

Another possible emergency forage crop is short-season corn for use as silage. You could drill about one bushel per acre of bin-run corn for late season pasture or hay, especially if corn herbicides eliminate other possibilities.

Soybean herbicides other than glyphosate can cause even bigger problems for replanting to forages. All summer grasses are sensitive to most soybean herbicides. Sunflower silage and soybeans for hay or silage are among the few alternatives compatible with soybean herbicide carryover.

If replanting doesn't occur until August, shift to oats and other spring small grains or to turnips and other brassicas, if herbicide carryover isn't a problem.

Bruce Anderson
Extension Forage Specialist

Daily updates of precipitation, GDD and ET data are available on the ***Weather*** page at

cropwatch.unl.edu.

Improve irrigation efficiency, save energy costs

Is your irrigation pumping plant operating at about the average efficiency level of all other pumping plants in Nebraska, or perhaps above or below that efficiency? Nebraska research indicates that if your irrigation pumping plant is operating at the average efficiency level of pumping plants in Nebraska, you could be using 30% more energy than necessary.

Most irrigation in Nebraska depends on groundwater as the water source so vertical turbine multi-stage pumps are used. The University of Nebraska has field tested hundreds of pumping plants over the years. Based on these field tests and on laboratory tests of engine efficiency, the University developed the Nebraska Pumping Plant Performance Criteria (NPC). This criteria states the amount of useful work (water horsepower - hours, whp-h) that you should reasonably expect to achieve in the field for each unit of energy consumed by a pumping plant.

In a pumping plant test, the technician measures total head (lift plus system pressure), flow rate (gallons per minute), and rate of energy consumption. Performance of the pumping plant is stated in terms of water horsepower hours (whp-h) per unit of fuel. The performance *rating* is the performance of the particular pumping plant compared to the Nebraska Performance Criteria and is expressed as a percentage of the NPC. A rating of 100% indicates that the pumping plant is operating as expected. A rating below 100% indicates the pumping plant is using more energy than the criteria calls for to do the same level of work. For example, a pumping plant operating at 70% of the NPC is only producing 70% of the useful work it should for the energy it is consuming.

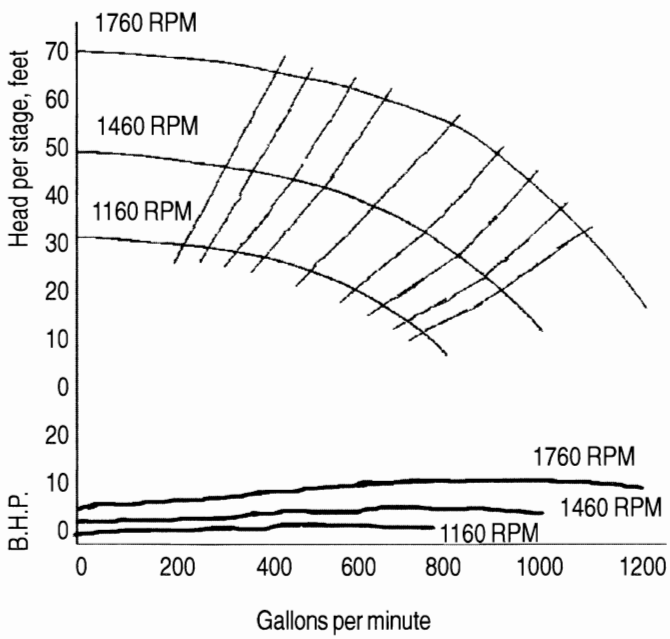

Figure 1. Irrigation pumping plant head versus capacity for a given rotational speed.

If you're one of those people who keeps a record of everything, you may have all the information you need to estimate pumping plant performance in your long-term energy use and irrigation records. A procedure is outlined at:

cropwatch.unl.edu/archives/2003/pumpingplantcalculation.pdf

The most recent statewide pumping plant efficiency study conducted by the University of Nebraska tested 130 farmer-owned pumping plants. As one might expect, the efficiency of the pumping plants tested by the University varied considerably. Some pumping plants achieved good efficiency. In fact, 15% actually exceeded the NPC. (Performance ratings over 100% of the NPC are possible when a highly efficient motor is attached to a well-designed pump that is not worn or misadjusted). The fact that some pumping plants exceed the criteria indicates the NPC is a reasonable target for all pumping plants. The other 85% of the pumping plants were found to use more energy per unit of work than would be expected by the NPC. The overall average pumping plant in Nebraska was found to be operating at only 77% of the NPC. To put it another way, the average pumping plant in the study was using 130% as much energy as it would if it were operating at the NPC (1.0/0.77 = 130%). Stated differently, the average pumping plant is using 30% more energy than necessary.

When the efficiency of a pumping plant is not what it should be, the problem is either in the power unit or in the pump or both. Internal combustion power units on irrigation pumps can have the same problems as those in cars and trucks. About the only thing that will cause poor electric motor efficiency is if the bearings are bad or if the motor is far larger than is needed for the job.

Poor pump performance may be caused by:

1) pump designs that are poorly matched to the job (for example, this might occur when the operator switches from gated pipe to a center pivot sprinkler or from a high pressure sprinkler to a lower pressure package without changing the pump),

2) pumps that have worn impeller vanes and/or internal seals as a result of pumping sand, or

3) impellers that were not properly adjusted within the pump bowls.

There are many pump manufacturers and each

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Pumping plant *(Continued from page 132)*

manufacturer can have dozens of pump designs in their catalog. A given impeller design operates on a head versus capacity curve for a given rotational speed. The greater the head (feet) the pump is working against, the lower the capacity (GPM) the impeller can produce (see *Figure 1*). The efficiency (work produced versus energy consumed) changes along the operational curve. Each design will have a best efficiency point at a certain head / capacity condition, with lower efficiencies at different head / capacity conditions on either side of the best efficiency point.

In the recent pumping plant tests, 58% were determined to potentially benefit from adjustments. Field adjustments made with a wrench either to the engine or pump or both resulted in 14% average savings in energy costs compared to the initial test results.

An equally important result was that inefficient pumping plants were identified and the feasibility of making repairs beyond the field adjustments were calculated. On some pumping plants, the potential savings in energy costs from major repair or even replacement of the pump would pay for itself in only a few years.

If a water meter isn't installed on the system, a short-term pumping plant test can be run using one of a variety of devices to measure the flow rate. Use a reputable well driller who is equipped to run a short-term pumping plant efficiency test. At today's energy prices, identifying a pumping plant that needs adjustment or repair could save hundreds or even thousands of dollars per year.

If the producer has records of total fuel use over a given time, the total volume of water pumped (from water meter readings), the system pressure measured at the discharge head, and the water level (measured while the pump is running), the performance rating can be estimated. This estimate can be used as an initial screen to help identify pumping plants that may require an experienced technician. A one-page procedure for using long-term records to estimate pumping plant performance is available at: *cropwatch.unl.edu/archives/2003/pumpingplantcalculation.pdf*

Why impeller wear reduces efficiency

Vertical turbine pump assemblies use multiple stages to create the total head (pressure) required to lift the irrigation water level in the well to the soil surface and to supply the pressure needed for the distribution system to function properly. *Figure 2* illustrates a cutaway of one stage of a multistage-enclosed impeller and bowl assembly as it would appear when first installed. Since the purpose of each stage of the pump assembly is to add pressure to the water, a seal must prevent the higher pressure water that has passed through the impeller from

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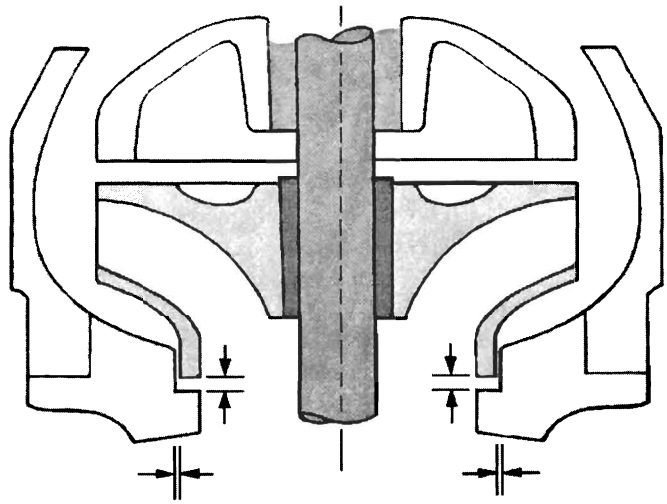

Figure 2. A cutaway view of one stage of a multistage-enclosed impeller and bowl assembly as it would appear when first installed.

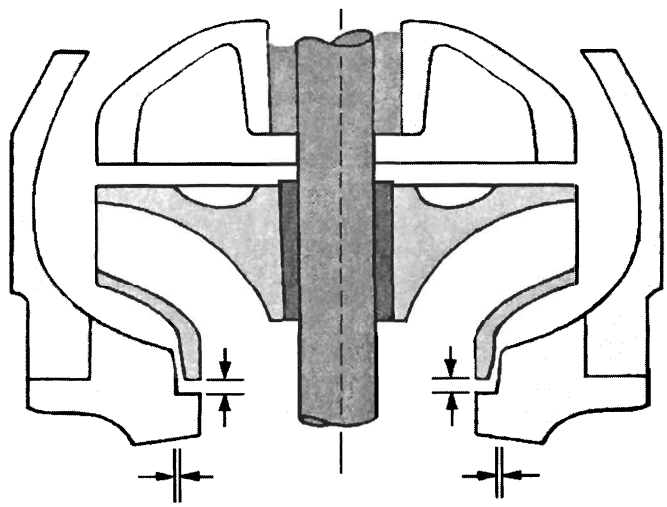

Figure 3. The same assembly as in Figure 2, but after years of wear caused by sand in the irrigation water has worn down the surface of the impeller vanes.

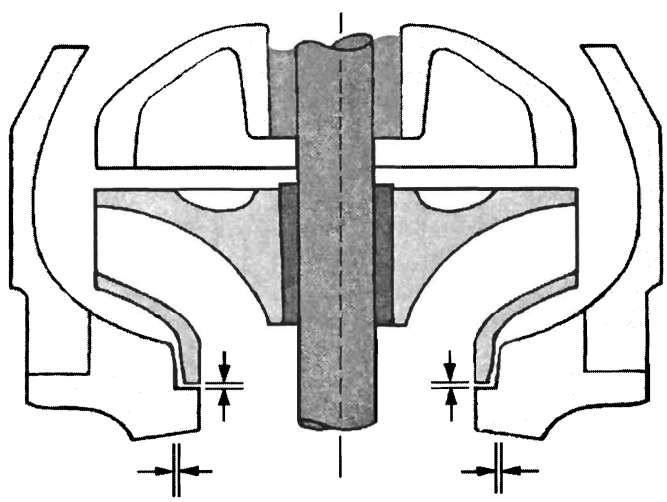

Figure 4. Worn impeller repositioned as low as possible in the pump bowl so it establishes a better seal.

Pumping plant

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leaking back into the lower pressure area at the inlet (eye) of the impeller. This seal is created by the close tolerance between the skirt of the rotating impeller and the wear ring area of the stationary bowl.

Figure 3 shows the same assembly after years of wear caused by sand in the irrigation water. This sand wears down the surface of the impeller vanes and causes wear to the impeller skirt and to the bowl in the wear ring area. Wear opens up the seal area allowing some of the higher pressure water exiting the impeller to flow back into the lower pressure area below the impeller. This water not only disrupts the smooth flow of water into the eye of the impeller, it is repumped and repressurized by the passing back through the impeller. This constant recirculation of a portion of the water adds to the work being performed by the pump with no beneficial results.

Figure 4 shows the worn impeller repositioned as low as possible in the pump bowl so it establishes a better seal.

Caution! Impeller adjustments to pick up a bottom seal must be performed by a qualified person who knows how to calculate the lineshaft elongation that occurs when the pump is operating under load. Great harm can be done to the pump if the impellers are improperly adjusted. Do not attempt to adjust the impellers yourself unless you know how to account for line shaft elongation based on your particular impeller model, lineshaft diameter and length and the total head the pump is producing.

Tom Dorn, Extension Educator
Lancaster County

Integrated management of Eastern redcedar in grasslands

Integrated management of eastern redcedar on pasture and grassland should be based on a combination of cultural, mechanical, biological, and chemical tools to keep this invasive tree under control and protect grassland production and profits. We recommend to use tree-height as a determining factor for control options. Burning, cutting, digging, mowing, burning, use of goats and broadcast herbicide application is effective on trees up to 2 ft tall. Cutting and individual-tree herbicide treatments work well on 2-10 ft tall redcedar. Trees that are over 10 feet in height are most effectively and economically controlled by cutting. The bottom line is "control trees while they are small."

Eastern redcedar (*Juniperus virginiana* L.) is one of 13 juniper species native to the United States. It is the most widespread tree-sized conifer and is native to every state east of the 100th meridian. Throughout this vast range, eastern redcedar grows on many soils and under varying climatic conditions. This adaptability has enhanced its spread.

Impact of eastern redcedar

Eastern redcedar is a problem on grasslands primarily because it reduces forage production and livestock handling. Developing trees alter the microclimate, which encourages a shift from desirable warm-season native grasses to introduced cool-season grasses such as Kentucky bluegrass. Heavy infestations make livestock handling more difficult. All these adverse effects can be reflected in lower rental rates or landprices for infested grassland. On many sites complete coverage by eastern redcedar can be expected, resulting in total loss of grass production unless controlled. Control measures should be initiated as soon as possible, both to improve effectiveness and reduce total control costs.

Integrated management of eastern redcedar

Integrated management is commonly described as "a multi-disciplinary approach utilizing the application of numerous alternative control measures." In practical terms, it means developing a management program based on a best method, or a combination of methods for the particular site, which could include mechanical, biological and chemical practices.

Nebraska's eastern redcedar infestations have developed over several decades and producers should expect control and maintenance to be a long-term effort. The emphasis should be on management of the infestation, rather than eradication. Eradication is not economical, and probably not physically possible in most cases. Instead, it should be recognized that some remaining larger trees, which are the most difficult and expensive to kill, do little damage. In fact, at low levels, eastern redcedars can be viewed as a potential resource, providing livestock shelter, wildlife habitat, timber products, and aesthetic values. Most important, long-term selective management is considerably less expensive than a more intensive, short-term approach.

If the goal is to just reduce the overall number of trees and stop further spreading, cut female trees only. Female trees are the ones that produce berry-like fruits. This would allow "male trees" to grow and provide much needed cover for wildlife or land beautification, while reducing further spreading.

Manual and mechanical control

Manual and mechanical control mesures include digging trees, cutting and mowing. It is very effective for small areas, and it is most efficient on trees up to 2 feet tall.

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Eastern redcedar *(Continued from page 134)*

Cutting is effective because eastern redcedar is a non-sprouter. Trees cut below the lowest branches will not regrow; however, cutting can be time consuming and labor intensive. Cutting alone also fails to remove all of the problem because fallen trees continue to occupy space. All cut trees should be gathered and burned, or permanently removed from the grassland. Short trees (less than 3 ft tall) can be mowed with a shielded mower shortly after regular cutting and haying.

Biological control

Biological control uses natural enemies to reduce weed populations to economically acceptable levels. Goats can be used to control redcedar up to 3-4 ft tall. Experience in Nebraska suggests that most cedar trees less than 24 inches tall were killed by goats utilizing paddock grazing system. The control level was reduced by 50% on 4-8 feet tall trees. Generally, goats are browsers with diets of about 70% non-grassy species who won't compete with cattle for grass. Goats prefer non-grassy species, but will eat grass if no other species is available.

Goats can help control many plant species that cattle do not eat, including various noxious weeds (eg. leafy spurge, thistles). They also can be a profitable livestock enterprise or earn their keep by being leased to other producers for control of invasive forms and shrubs. Use appropriate goat stocking rates and quality fencing and adjust the number of goats to the amount of plant material needing to control.

The grazing strategy depends of the management goal for the pasture. Adding one or two goats per cow and letting the goats and cattle run together is an excellent maintenance strategy for pasture with moderate to low cedar infestation. However, if the goal is to get a quicker response and try to suppress denser stands then the area needs to be fenced off using temporary fencing. Thus per acre stocking rate should be at least 10 goats/acre of land infested. With moderate cedar infestation this rate should result in significant damage to the trees within 30 days. Higher stocking rates would be better, but will require moving the fence more often. Trees and other perennial plants have high energy reserves in their root systems and repeated defoliation over a few years is required to control them.

Cedar trees, however, will not resprout. If the goats remove most of the needles and/or bark, the tree will eventually die.

When considering the use of goats, also consider potential predators (e.g. coyotes).

Also consider what's needed to raise goats for meat if this is part of the plan. A good place to start is with ATTRA, part of the National Sustainable Agriculture Information Service, available online at *www.attra.org/*.

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Herbicides, other options help control buckbrush in range

Buckbrush (*Symphoricarpos orbiculatus*) is a native weed common to northeastern Nebraska's rangeland, woodland, ravines and streambanks. It is a perennial forb that reproduces both by seeds and rhizome. (Rhizome is a horinzontal creeping root system growing within 2-12 inches of soil surface.) Rhizome can access soil moisture from a deeper profile at a much better rate than fibrous roots of pasture grasses, giving buckbrush the competitive advantage over grass, especially in dry years.

Buckbrush plants usually start growing in sparse groups and then spread. The stem is erect, 2-6 feet tall, brownish, somewhat smooth, and with many branches. Leaves are opposite and elliptic to ovate with pointed tips. Like many other plant species, the overall growth and development depends on the amount and timing of rainfall.

In Nebraska buchbrush produces greenish-white to purple flowers from July to August. It provides forage for deer early in the season and its fruits are an important food source for upland game birds, wild turkeys and songbirds. Buckbrush has no value to livestock because of its low palatability.

Ranchers need to control buckbrush because heavy stands can reduce grass production by as much as 80%, especially in dry years, and the plants have no value as livestock forage. This weed can be controlled by various means. Goats and sheep can reduce the stands of buckbrush considerably if confined to the area. A single mowing of plants 1-2 feet tall plants also can reduce the population, especially in dry years. Additional mowing will be needed in wet years. Mowing also can help remove previous growth to prepare the site for broadcast herbicide applications.

Herbicides are the most effective tools in providing season long control. Apply herbicides when the new growth is 6-12 inches tall. Effective herbicides and their rates include: 2,4-D-Ester (2-3 qt/ac), Grazon P+D (1-2 qt/ac), Telar (1.0 oz/ac); mix of Cimarron (0.25 oz) with WeedMaster (16 oz); mix of Cimarron (0.25 oz/ac) with RangeStar (16 oz/ac), and Cimarron (Ally, Escort) used alone at 0.5 oz/ac.

Stevan Knezevic
Extension Weeds Specialist
Haskell Ag Lab, Northeast REC

Eastern redcedar

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The page "Goats: Sustainable Production Overview, Livestock Production Guide" has information on numerous topics relating to meat goat production.

Ranchers in other parts of the United States have run cattle and goats together for decades. They view goats both as a profitable part of their business and as n important part of their grazing land management program.

Prescribed fire

This method is inexpensive and very effective against smaller trees. Its effectiveness declines as tree size increases; however, there were cases of successful burning of tall trees. Adequate fine fuel (usually, last year's dead grass) is necessary for satisfactory results. Safety also is a concern since many managers lack experience with fire and the equipment required to conduct fires.

For information on how to conduct a prescribed burn, check these University of Nebraska Extension publications NebGuide G88-894, *Grassland Management with Prescribed Burning*, and EC 90-121, *Conducting a Prescribed Burn*. A fire plan should be prepared and a prescribed-burning permit obtained from the local fire jurisdiction, as required by state law.

Note: Next week's *CropWatch* will explore chemical options for controlling eastern redcedar.

According to the **USDA Public Soybean Rust Web** site at *www.sbrusa.net/*, Seminole County in southern Georgia is the first county outside of Florida to report Asian soybean rust in 2005. Scientists continue to watch sites and spore traps to see if there was any effect from Hurricane Arlene.

University launches on-line Crop Surveillance Network

The University of Nebraska, with financial support from the Nebraska Soybean Board, has developed a real-time system to track and report on insect and plant disease development in soybean from day to day and year to year.

The Nebraska Crop Surveillance Network is available on-line at *ncsn.unl.edu*. Project coordinators are Extension Specialists Loren Giesler, plant pathology, and Tom Hunt, entomology.

NCSN provides a system for extensive monitoring and reporting of pest developments in crop fields. University faculty and staff in participating counties have been specially trained to watch for and identify pest problems in soybeans. They submit information to a database which displays the information on a public Web site. If a specialist can't identify the pest or disease, samples are submitted to the University Plant and Pest Diagnostic Clinic for testing and identification.

Real-time information on local crop disease and insect pest developments can help managers identify emerging problems, providing more time to determine management options.

See the Nebraska Crop Surveillance Network:

ncsn.unl.edu

The Web site currently includes information from 2004 and continually updated reports from 2005. Information is portrayed in easy-to-read graphs and tables. Users can specify the county, time period and type of information they're seeking.

This data provides a baseline against which producers and crop consultants can compare changes from year to year. It also provides a baseline for tracking developments as part of the nation's ag security program.

At this time, participating counties include: Burt, Clay, Dixon, Gage, Hamilton, Holt, Howard, Jefferson, Lancaster, Merrick, Pierce, Saunders and Thayer. Data is only available for soybeans at this time, although other crops may be added in the future.

Funding for this project was provided by the Nebraska Soybean Board.

Wheat forecast up 20% from last year

Nebraska's 2005 winter wheat crop, based on June 1 conditions, is forecast at 73.1 million bushels, down 4% from a month ago but up 20% from last year's crop. Average yield is forecast at 43 bushels per acre, down 2 bushels from last month but 6 bushels greater than last year, and 3 bushels above the ten-year average.

Acreage to be harvested for grain is estimated at 1.70 million acres, unchanged from last month but up 50,000 acres from last year. In the major wheat growing areas, as of May 29, topsoil moisture supplies were rated mostly adequate with subsoil moisture supplies mostly adequate to short. Wheat crop condition rated 39% good to excellent with development at a near normal pace of 64% headed. Insect pressure has been light, however, wheat diseases were impacting some fields.

USDA's Nebraska Agricultural Statistics Service

Hay and silage options to plant after wheat

If you need extra feed, several crops can be planted for silage after wheat harvest. For example, an early maturing corn can be planted thick, although yield still might not be very high. A better choice for late plantings might be forage sorghum if chinch bugs and other insects are not a problem. Use high grain-producing hybrids when available. The best choice of all for short-season silage might be sunflowers. They survive light frost and yield well under many conditions.

If you want hay instead of silage, plant sorghum-sudan hybrids, pearl millet, or foxtail millet when chinch bugs aren't a problem. A hay crop exceeding one and one-half tons per acre still can be grown if it's planted soon and rain is timely. Another hay or silage alternative is solid-seeded soybeans. A couple tons of good forage can be grown from taller, full season varieties planted after wheat.

Another option would be to plant oats or turnips in wheat stubble in late July or early August. Oat yields over two tons are possible if moisture is good, fertility is high, and our hard freeze comes a little late. Both are cheap to plant and with a few timely rains in August and September, both can produce a lot of high quality feed in a short time.

The cheapest option might be to thickly drill bin-run corn if you have a drill that can handle the kernals and germination is good.

Don't automatically let your wheat ground sit idle the rest of the year, especially if you could use more forage. There are many forage options, and one might be right for you.

Bruce Anderson
Extension Forage Specialist

Mullein Control Field Day

Producers can view field research trials on how best to control common mullein at a June 30 field day near Blue Hill.

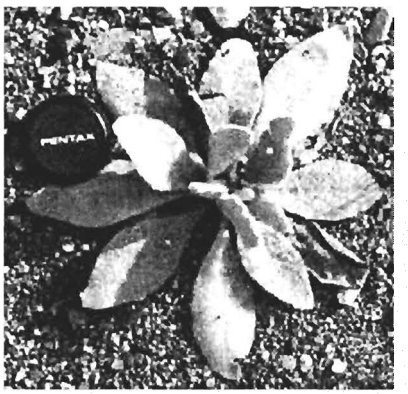
Occasionally found in roadside ditches and landscape settings, common mullein has become a troublesome weed in pastures throughout Nebraska, Kansas, and Colorado. A combination of drought and overgrazing is blamed for the recent increase in mullein.

Common mullein has a two-year life cycle. A rosette is produced the first year and a flower stalk with yellow flowers is produced the second year. Flowers bloom from June to September, after which a single plant can produce over 100,000 seeds. These seeds can survive an average of 35 years. At the end of the second year, the plant dies.

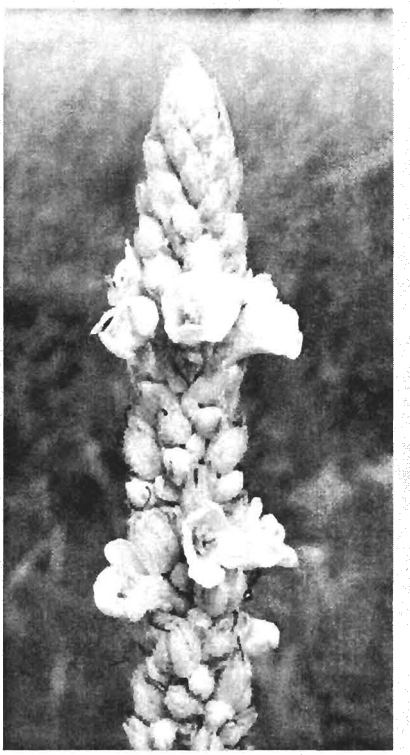
At the field day, producers will be able to view eight fall- and eight spring-applied replicated treatments for controlling common mullein.

The field day will be held from 11 a.m. to 2 p.m. June 30 at the Agri-Coop Chemical Plant just south of Blue Hill on Hwy 281. Tom Gee with Dow AgroSciences and Dan Beran and Doug Haller with BASF will discuss chemical options for mullein control. University of Nebraska – Lincoln Extension Educators Dewey Lienemann and Jenny Rees will give a brief overview of common mullein and discuss plot layouts and chemical efficacy. After lunch, producers may view plots at their leisure.

Plots are located at two sites on producers' pastures. These plots were the result of a cooperative effort among the South Central Agricultural Laboratory near Clay Center, BASF, Dow AgroSciences, Don Hubl and LaDonna Jesske (local farmers), Lienemann and Rees. A free lunch will be provided by Dow AgroSciences and BASF.



Common mullein has a two-year life cycle. A rosette (above, Figure 1) is produced the first year and a flower stalk (below, Figure 2) with yellow flowers is produced the second year.



Tips for sampling for corn nematodes

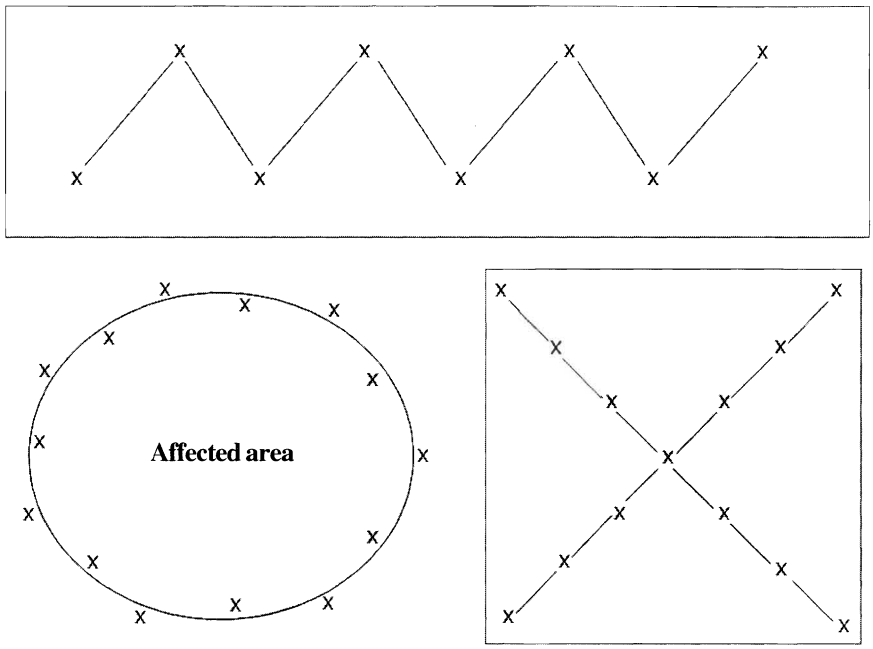
Note: *This is the second article in a three-part series on corn nematodes in Nebraska.*

How do you know if you have a corn nematode problem? Disease caused by corn nematodes can't be diagnosed based on symptoms alone. Soil samples must be submitted to a testing facility capable of extracting and identifying corn nematodes. In addition, since some of these nematodes spend most of their lives inside the roots, it is helpful to send root samples, too. Estimating the population densities in the soil and roots can help determine if corn nematodes are a problem in your field. The quality of your diagnosis is only as good as the quality of the sample you submit.

Following are some tips for collecting a good sample for nematode analysis:

- Take soil samples with either a spade or a soil sampling probe. A composite sample should be made from 12-24 subsamples taken to a depth of 6-8 inches and represent no more than 10 acres. Samples may be taken from an entire planting or concentrate on a damaged area. When sampling an entire field, use a pattern such as an "X" or zig-zag pattern (see *Figure 1*) as a guide. The highest population densities are usually in isolated spots and account for the development of severe disease there. Sampling an entire planting, instead of focusing on damaged areas, can give a more accurate estimate of fieldwide distribution.
- When sampling a damaged area, samples should NOT be taken from the center of the most severely affected areas, such as the one shown in a photo in the June 17, 2005 *Crop Watch.* Roots in these areas may be so heavily damaged that there is not enough root material available for nematodes to feed on. Population densities are often lower there because nematodes have moved. Instead, it is a better idea to sample from the peripheral edges of affected areas where plant symptoms are less severe and nematode population densities are still high. For the sake of comparison, you also may include samples from other field areas where plants appear healthy.
- Avoid excessively wet or dry soil conditions.
- If you are collecting root samples, use a spade to carefully dig up the plant while keeping most of the roots intact. Infected roots often are more brittle and may be lost during sampling. Submit root samples to the lab as soon as possible to insure freshness.
- Put samples in plastic bags to prevent desiccation, but do not add water. Don't allow samples to either bake in the sun (or freeze) because it will kill nematodes and may adversely affect your test results. Keep soil and root samples cool, for example in a cooler or refrigerator, until they're mailed. When you mail them, reduce the amount of time that they are in transit by selecting a rapid delivery option. Also, avoid mailing them at the end of the week so that they don't have to wait over the weekend in a hot (or cold) delivery truck or warehouse.
- As always, provide as much information as possible to aid with diagnosis. Include field and crop history, pesticide and fertilizer use, specific conditions (e.g. symptom description and distribution in the field, unusual weather, etc.) and observations that would improve the accuracy and speed of your results.
- Finally, nematode population densities are likely highest at the end of the growing season prior to harvest; however, some nematodes, such as needle and sting, travel deeper in the soil during hot weather, and may not be collected during routine sampling. With that in mind, the results from nematode analyses of soil collected during the middle or latter parts of the season may not accurately reflect the population densities of those nematodes.

The UNL Plant and Pest Diagnostic Clinic conducts nematode analyses for a fee of $15 per sample. For more information and submission forms, contact your local extension office.



Sampling patterns for corn nematodes, where "X" marks the location of soil subsamples.

Tamra Jackson
Extension Plant Pathologist