

2004

## *Crop Watch* No. 2004-15, July 16, 2004

Lisa Brown Jasa

*University of Nebraska-Lincoln*, [ljasa@unlnotes.unl.edu](mailto:ljasa@unlnotes.unl.edu)

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# CROP WATCH

University of Nebraska Cooperative Extension  
Institute of Agriculture and Natural Resources

UNIVERSITY OF  
**Nebraska**  
Lincoln

No. 2004-15, July 16, 2004

In corn and soybeans

## *Bacterial diseases widespread*

This summer's frequent rains and cooler weather have resulted in bacterial diseases becoming prevalent in both corn and soybean fields. Holcus Spot caused by the bacterium *Pseudomonas syringae* pv. *syringae* is appearing in corn and Bacterial Blight caused by *Pseudomonas syringae* pv. *glycinea* is appearing in soybean fields. Note that both of these are the same species but have different pathovar (pv.) designations which reflects a subspecific split mostly due to host range. Both diseases are common in Nebraska, but not at the level of disease severity we are seeing this year.

Holcus spot of corn appears as small round to oval light tan to white lesions which have a light brown border on the leaves. In some instances the border is not evident and in most hybrids lesions will appear bleached white. Holcus lesions can be confused with paraquat drift and eyespot. Eyespot is a fungal disease of corn which has



(Above) Bacterial blight of soybean and holcus spot of corn (left) are much more common this year following a series of storms with hail and high winds. Bacterium often enter the plant through post-storm plant injuries.

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more evident margins on the lesions and usually will have a "halo" of chlorotic tissue around the lesions. The "halo" is not present with Holcus spot lesions.

Bacterial blight on soybean will appear as angular lesions, which begin as small yellow to brown spots on the leaves. The centers of the spots will turn a dark reddish-brown to black and dry out. A

yellowish-green "halo" will appear around the edge of water soaked tissue that surrounds the lesions. Eventually the lesions will fall out of the leaf and the foliage will appear ragged.

Both of these diseases are favored by stormy conditions which

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## Ag briefs

**Paul Hay, Extension Educator in Gage County:** Wheat harvest was finally completed this week. Excellent yields were reported with most fields in the 60-70 bushel per acre range. Several fields reported common bunt or stinking smut. It will be our strong recommendation that all southeast Nebraska wheat be treated before planting. Corn and soybeans are looking good and milo is in the boot stage.

**Tom Dorn, Extension Educator in Lancaster County:** Pastures are looking the best they have in five years. Small grains: Wheat harvest is essentially complete and oats for grain will be harvested soon. Corn: Outside of the storm-damaged area, both irrigated and dryland corn looks good. Most corn has tasseled and fields are pollinating now. Soybeans: Most soybean

### Bacterial blight

(Continued from page 137)

provide wounds on the leaves for entry and wet conditions with milder temperatures. The optimum temperature for both is around 75°F. Infections usually start in the lower portion of the canopy. Remember that these are associated with wounds, so in soybeans sometime the lesions are not in the lower leaves of the canopy which are more protected during stormy conditions.

These diseases should go away as temperatures heat up and move out of the optimum range for bacterium growth. If conditions remain cool, avoid any cultivations or other traffic in affected fields because equipment can track the disease through the field and worsen the condition. Fields with reduced tillage will tend to have more of these disease problems as the bacterium resides in the residue.

**Loren J. Giesler**  
Extension Plant Pathologist

fields have closed in the canopy and are blooming. In a brief survey of a few fields in western Lancaster County on Monday, I found a very small number of soybean aphids. Hay: The frequent showers have made hay production a nightmare. Some alfalfa fields that should have been cut for the second time are in full bloom and beyond but the farmers have not been able to cut because of wet soil. Other fields have been windrowed but have been rained on several times and the hay is rotting in the windrow.

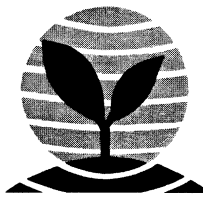
**Del Hemsath, Extension Educator in Dakota, Dixon and Thurston counties:** Heat units finally made it to this area of the state and are helping the corn development. Bacterial rot is appearing in corn, especially where hail occurred earlier in the year. Low numbers of soybean aphids are beginning to appear in spotty areas. There is still some second cutting alfalfa laying in the field because of untimely rains with regrowth is 4 to 6 inches high. Soybeans are looking better and beginning to have canopy closure on the narrow rows. Pastures look

great at this time.

**David Baltensperger, Extension Alternative Crops Breeder at the Panhandle REC:** We've seen a dramatic shift to hot and dry conditions in the Panhandle — especially a shift to hot. This is rapidly speeding up wheat maturity and should end most of our rust problems. Wheat that was potentially going to sprout should be able to be harvested without additional problems. Until it is in the elevator and checked we will have limited idea on how much of the Panhandle has sprout problems, but it should not be increasing at this stage.

**Andy Christiansen, Extension Educator in Hamilton County:** We have had quite a bit of rain generally across the county and about the only irrigation that has occurred has been quite a few pivots made a round a month ago. Wheat harvest has been delayed by rain. Western bean cutworm has been above threshold in many fields throughout the county. I believe quite a few will treat this week. Soybean insects have been very minor so far this season.

# CROP WATCH



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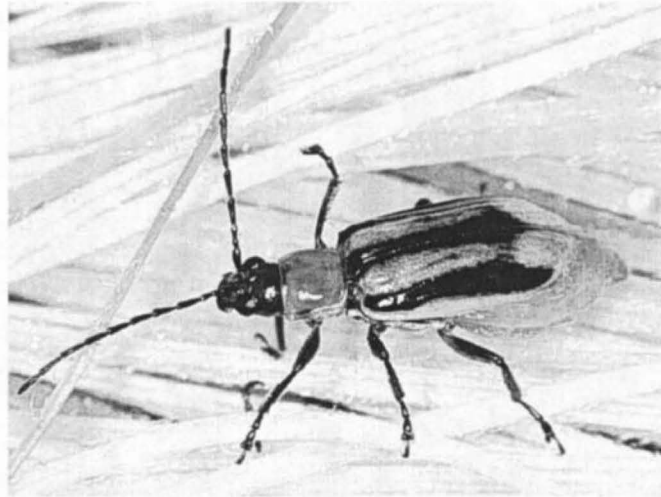
Lisa Jasa, Editor; Email: [ljasa1@unl.edu](mailto:ljasa1@unl.edu)



## Use corn rootworm scouting numbers as basis for production decisions in 2005

Western corn rootworm beetles began emerging in late June in southeastern and south central Nebraska. Beetle emergence will be somewhat later in northeastern and western Nebraska. Beetles emerging before silk emergence may feed on corn leaves. They feed by scraping the surface tissue, leaving a white parchment-like appearance. Once silks emerge they become the favored food. The earliest silking fields in an area often are most heavily damaged because beetles will move around in search of green silks.

There are no thresholds for silk-clipping damage based on beetle numbers because damage levels are not correlated well with beetle densities. Usually an average count of at least 10 beetles per ear is required to seriously affect pollination. Severe silk feeding at 25-50%



Corn rootworm beetle

be most profitable to use this technology. Unlike European corn borers, we can predict where the greatest likelihood for rootworm injury will be, and beetle scouting information from this summer can

is needed next year. With adult beetle control programs decisions as to whether to treat and if so, when to spray, should be based on information from field scouting.

Start scouting for corn rootworm beetles soon after beetle emergence begins and continue scout-

ing weekly until threshold levels are exceeded or beetle activity stops. Examine 50 plants per field, taking samples from each quarter of the field. Sampled plants should be several paces apart, so that examining one plant doesn't drive beetles off of the next plant to be sampled. The most reliable method is to examine the whole plant for beetles. Beetles may hide behind leaf sheaths or in the silks, so care is required to observe all beetles present. An alternative method is to check for beetles only in the ear zone (the area including the upper surface of the leaf below the primary ear and the under surface of the leaf above the primary ear).

In continuous corn if beetle counts exceed 0.75 beetle per plant, damaging populations of corn rootworms are possible in that field next year. In first year corn, there is a higher proportion of female beetles, so the threshold is lowered to 0.56 beetle per plant. These thresholds are based on a 24,000 plant population per acre. The number of beetles per plant to equal a threshold level should be adjusted

**If corn rootworm beetle numbers exceed the threshold, consider rotating out of corn next year, planting a transgenic corn active against rootworms or plan for an insecticide at planting or cultivation to prevent economic damage.**

pollen shed may indicate the need to apply an insecticide, especially in seed production fields. Visit the UNL Department of Entomology Web site at <http://entomology.unl.edu> for a list of insecticides labeled for adult rootworm control.

Traditionally we have talked about the value of rootworm beetle scouting to determine the need for insecticides the next year if a field is to be planted back to corn. With the registration of YieldGard Rootworm corn, beetle scouting also can be used to determine where it would

be used to target placement of transgenic corn hybrids next year for rootworm control.

During late July and August these beetles will lay eggs in corn fields. These eggs overwinter in the soil, hatch into rootworms in the spring, and feed on corn roots if continuous corn is grown. However, not all continuous corn fields have economic infestations of corn rootworms. Weekly scouting of adult rootworm beetles in July and August will provide the information needed to decide whether rootworm control

(Continued on page 140)

**Corn rootworms** (Continued from page 139)

for different plant populations (see table at right or NebGuide G86-774, *Western Corn Rootworm Soil Insecticide Treatment Decisions Based on Beetle Numbers*). If the ear zone method is used for scouting, divide the above thresholds in half, since on average only 50% of the beetles on a plant are counted using this method.

In fields with insect levels over the threshold, consider rotating out of corn, planting a transgenic corn active against rootworms or plan to use an insecticide at planting or cultivation to prevent economic damage. Fields remaining below the threshold level throughout the beetle egg-laying period are not expected to have economic populations of rootworms next year.

Individuals using adult beetle control programs should begin treatments when the beetle threshold is exceeded and 10% of the female beetles are gravid (abdomen visibly distended with eggs). This is an important point since the first beetles to emerge are mostly male, and females require at least 10-14 days of feeding before they can lay eggs. Treatments applied too early may be ineffective if large numbers of females emerge after the residual effectiveness of the treatment has dissipated.

Continue to monitor fields weekly after treatment for rootworm beetles. If beetle numbers exceed 0.5 beetles per plant, retreatment is warranted. Late maturing fields are particularly susceptible to corn rootworms moving into them from nearby earlier maturing fields. A complete discussion of adult corn rootworm management can be found in *Corn Rootworm Management (EC1563)*, available from your local Cooperative Extension office or on the Web at <http://ianrpubs.unl.edu/insects/ec1563.htm>.

**Bob Wright**  
Extension Entomologist

Average number of western corn rootworm beetles present in cornfields that may produce an economically damaging rootworm population in corn the following year.

Plants per acre	Average number of rootworm beetles			
	Continuous corn <sup>1</sup>		First year corn <sup>2,3</sup>	
	Per plant	Per ear zone	Per plant	Per ear zone
14,000	1.28	0.64	0.96	0.48
16,000	1.12	0.60	0.84	0.42
18,000	1.00	0.50	0.75	0.37
20,000	0.90	0.45	0.68	0.34
22,000	0.81	0.40	0.61	0.30
24,000	0.75	0.37	0.56	0.28
26,000	0.69	0.34	0.52	0.26
28,000	0.64	0.32	0.48	0.24
30,000	0.60	0.30	0.45	0.23
32,000	0.56	0.28	0.42	0.21

<sup>1</sup>Based on a 50:50 ratio of females to males.

<sup>2</sup>Based on a 70:30 ratio of females to males.

<sup>3</sup>Use this threshold for continuous corn fields that did not have larval populations earlier in the season (adult beetles are immigrants, similar to first year corn).

## Water opened to irrigation canals in the North Platte Valley

Water was brought into the main canals in the North Platte Valley last week and irrigators are in full swing. Even though the canals are full and water is flowing, the area's water worries aren't over. The supply of water is less than what is needed and in order to extend the irrigation season to a reasonable length, water deliveries have been restricted. The water

supply is estimated to last 30-45 days, depending on the weather from now to August 1.

Recent precipitation has helped supplement some irrigation; however, fall rains are going to be needed to maintain crop growth to maturity, especially for those without an irrigation well.

Although there has been some hail associated with the rain storms, most irrigated crops are looking good. Plant stands are somewhat variable in both density and crop height due to the extreme dry conditions during emergence that caused germination to be delayed in portions of the fields.

**C. Dean Yonts**  
Extension Irrigation Specialist  
Panhandle REC

**For irrigation planning and daily GDD & ET updates, see [cropwatch.unl.edu/weather.htm](http://cropwatch.unl.edu/weather.htm)**

## *Segregate sprouted wheat; avoid price docks*

Producers who haven't yet harvested their wheat should check fields and segregate areas where wheat heads have sprouted to avoid lower prices at the elevator, a University of Nebraska agronomist said.

"Producers need to leave badly sprouting areas uncut to avoid a dock in price at the elevator," said Brian Beecher, an agronomist with the Institute of Agriculture and Natural Resources. "If possible they should be segregating these areas at cutting time."

He said producers know their fields and know what to look for, but it may require some field walking and hand threshing to determine which areas are best suited for harvest. Preharvest sprouting occurs when high moisture levels cause mature wheat to germinate prior to harvest. Sprouting, which may appear as a swelling from the shoot at the germ portion of the grain, degrades wheat quality. Sprouting is a problem in parts of Nebraska this season.

"Normally rain tapers off as wheat harvest time approaches," Beecher said. "The unusually cool and damp weather has kept a lot of wheat in the field, and has made it susceptible to sprouting. Wheat with a high degree of sprouting becomes useless to the food industry. It becomes animal feed and that brings a lower price."

He cautioned that it is important to remember that sprouting can be very localized.

"One portion of a field may have sprout damage while the remainder could have sound grain," Beecher said. "In these cases, producers may be able to avoid some of the price dock at the elevator by segregating the grain from these areas."

**David Oschner**  
IANR Newswriter

## Controlling weeds in wheat post harvest

The 2004 winter wheat crop has been a 'mixed bag'. Conditions last fall resulted in poor to good stands, depending on whether the area received late summer or early fall precipitation. This spring cutworms were present in some wheat fields.

In much of the state the lack of rainfall in summer and fall 2003 and spring 2004, plus limited moisture from snowfall, contributed to shorter wheat and lower yields. In central and western Nebraska winter wheat in continuous cropping systems produced little straw or grain. Controlling weeds after winter wheat harvest will be a challenge this year. Some fields have lots of weeds as a result of the late spring and early summer rains and shorter and less competitive wheat.

The effectiveness of post-harvest weed control is influenced by production practices associated with the previous wheat crop, such as winter wheat variety selection, fertilizer practices, row spacing, planting date, and seeding rate. Other factors influencing weed control include: weed size; cutting off weed tops with the combine; crop rotation; temperature when spraying; rain the day of spraying; streaks caused by sprayers, terraces, dust, straw, and chaff; and weed seed distribution. The lack of residue from this winter wheat crop also will make the next crop less competitive with weeds. Weeds under stress are very difficult to control. It's a general rule that for wheat grown in a three-year rotation, one can wait a maximum of 30 days after harvest to spray, but if the wheat was planted without an 11- to 14-month fallow period, it should be sprayed within 15 days after harvest. Each field should be examined separately and this year

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*Thin stands, limited residue, and late rains are leading to fast growing weed problems.*

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some will need to be sprayed before 30 days. The key is to prevent weeds from using soil water and producing weed seeds.

Split treatments, which have a good history of effectiveness, should be especially beneficial this year. In Kansas, there was a 20 bushel increase in corn yields the next year for treatments applied in July vs mid-August. With the split treatment, apply the glyphosate products alone (adding surfactant, if needed, plus ammonium sulfate) as the first application in July or early August. Some glyphosate products include sufficient surfactant while many products require it to be added so be sure to check the product label. For all glyphosate brands, add ammonium sulfate (spray grade) at 17 lb per 100 gal of spray solution. The ammonium sulfate is the first item put into the spray tank after the water. Ammonium sulfate is especially helpful when stress conditions are present. Liquid ammonium sulfate, with or without a drift retardant, also is available.

It's difficult to recognize weed stress so it's wise to always add ammonium sulfate. Improve control by increasing the rate of glyphosate. Allow at least six hours for the glyphosate product to become rainfast – and longer with some weeds. Barnyardgrass may require as much as 24 hours without rain

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## Weeds in wheat *(Continued from page 141)*

for maximum control. With glyphosates, use a spray volume of 5 to 10 gallons per acre don't apply when temperatures reach or exceed 95°F.

The second part of the split treatment should be applied in September. It should contain at least 0.5 pound per acre of atrazine and possibly Gramoxone Extra (add surfactant), depending on the amount and size of volunteer winter wheat, downy brome or jointed goatgrass present. Several options are available for using nonselective herbicides with difficult-to-control weeds. With Gramoxone Extra, use a minimum of 2 pints of X-77, or equivalent surfactant, per 100 gallons of solution. Use 2 quarts of X-77 per 100 gallons of spray solution if using less than 20 gallons of carrier.

The atrazine rate varies with soil and rainfall patterns. In southwest Nebraska, use at least 2 quarts per acre of atrazine, but in the Panhandle, 0.5 quart per acre is often the maximum allowed in one season. The advantage of split treatments is that they provide excellent control of volunteer winter wheat and other winter annual grasses.

Control of volunteer wheat is especially helpful in reducing the spread of wheat streak mosaic disease. Using one quart or less of atrazine before September 10 allows winter wheat to be planted 12 months later in most areas. If sufficient soil water is available the following spring, corn could be planted or if moisture is limited, the field could be fallowed and winter wheat could be planted in the fall.

Many options besides increasing herbicide rates are available for weed control after wheat harvest. Combining several options can help achieve maximum weed control. Stands of vigorous winter wheat will compete better with weeds, allowing you to concentrate on

weed control in the fallow. Preparing a good firm seedbed, controlling weeds in a timely manner, fertilizing if needed, proper seeding, planting during the optimum time, selecting a competitive winter hardy winter wheat variety, and weed control in the growing wheat offer the best chance of reducing weed population and vigor after harvest. In addition, it's essential that you watch closely and spray at the proper time to control weeds. Most labels state that weeds must be treated before they are 6 inches tall. If weeds are under severe drought stress, wait for rain and spray about a week later.

If downy brome is a problem and a winter wheat-fallow rotation is being used, tillage is usually recommended immediately after harvest to plant the seeds and ensure maximum weed germination during the fallow period. This year, however, tillage should not be used due to the limited amount of crop residue and the potential for soil erosion.

Herbicides are available to control downy brome in the growing winter wheat and are best applied early. If jointed goatgrass and/or feral rye is a problem, use a rotation where wheat is not planted for at least three years under good moisture conditions and even longer under dry conditions. Herbicide tolerant winter wheat varieties are available for fields with jointed goatgrass or feral rye problems. Beyond<sup>®</sup> herbicide is then applied in the growing wheat. Grower training is required before purchasing this herbicide. Check the label for additional information.

**Robert Klein, Extension  
Cropping Systems Specialist  
West Central REC**

**Drew Lyon, Extension Dryland  
Crops Specialist, Panhandle REC**

**Gail Wicks  
Extension Weeds Specialist  
West Central REC**

## Nebraska wheat crop down 31% from 2003

Based on July 1 conditions, Nebraska's 2004 winter wheat crop is forecast at 57.6 million bushels, down 11% from last month's forecast and 31% below last year's crop, according to USDA's Nebraska Agricultural Statistics Service.

Average yield is forecast at 32% per acre, 3 bushels below last month and 14 bushels below last year's near record yield. This is the lowest yield since 1992 when the average was 30 bushels per acre. The recorded head count from Nebraska's objective yield survey, at 43.0 heads per square foot, is the lowest since 1996.

Acreage to be harvested for grain is estimated at 1.80 million acres, 20,000 acres less than last year. "After the near record yielding crop of a year ago, this season has turned into a real disappointment for many Nebraska wheat producers due to the continued drought conditions in western counties and a mid-May freeze which damaged the crop," said Mark Harris, director of Nebraska Agricultural Statistics. Wheat harvest started the third week of June and has kept a near normal pace.

Oat production is forecast at 3.65 million bushels, down 44% from last year's record yielding crop. The number of harvested acres -- 50,000 -- is down 44% but yields are similar to last year.

See the July 2 online  
*CropWatch* for a  
Kansas State University  
report on *saving and using  
sprouted wheat seed.*

## Use SCN numbers to guide variety choice, rotation

This summer's sampling for soybean cyst nematode in southeast and eastern Nebraska reinforces the need for selecting varieties and rotation plans to counter this stealthy, yield-robbing pest. Currently the most serious pest of soybeans in the United States, the soybean cyst nematode (SCN) can cause significant yield losses without causing obvious field symptoms.

Recent University of Nebraska trials conducted on positive fields in the northern Missouri and Platte river bottoms have shown yield losses up to 35% without visible symptoms and losses to 50% with symptoms apparent in the field. It points out the importance of farmers testing their fields and selecting varieties and rotation plans according to the presence or absence of the cyst nematode.

### Soybean cyst nematode field days

Three eastern field days will feature demonstration plots and information on soybean cyst nematodes, aphids and the potential for soybean rust. The field days are sponsored by University of Nebraska Cooperative Extension and will include question and answer sessions and refreshments.

**August 17, Tuesday, 1 p.m.** Steve & Jerry Kennedy Farm, east of Nemaha. (From junction of Hwy 136 and 67 east of Auburn, go south 4 miles to north edge of Nemaha and 1 mile east on gravel road)

**August 19, Thursday, 6 p.m.,** Dan Bundy Farm, between Ashland and Gretna. (On Hwy 6, 1 mile east of Linoma Beach or 2.5 miles west of the junction with Hwy 31)

**August 20, Friday, 1 p.m.** Roger Fuoss Farm, northwest of Wayne. (On Hwy 15, 7 miles north of Wayne or 3 miles south of the Concord turnoff, then 3.3 miles west on County Road 863.)

Of particular concern was the fact the farmers on the Missouri and Nemaha bottoms were not aware of presence or absence of soybean cyst nematodes in their fields. With the help of Monsanto and Pioneer, 50 fields at random were sampled along the Missouri and Nemaha bottoms from Rulo to Peru. Thirty-three of these samples were taken in river bottom fields. Over 70% (24) of these samples were positive. This supports the need for farmers considering the potential for soybean cyst nematode when selecting varieties and planning crop rotations. Most farmers in the area use a corn soybean rotation. This helps keep nematode populations in check, but does not rule out damage. Farmers in this area should be selecting resistant soybean varieties and even rotating the genetic resistant mechanisms of the varieties.

In our sampling, upland sites were less prone to have nematode infestations, even when the same producer was farming both the bottoms and the upland fields. Only 3 of 14 upland sites above these river valleys had positive tests for soybean cyst nematode.

On the Blue River positive tests have been found in the Blue Springs and DeWitt area.

Four samples taken between Beatrice and Hoag were negative. It is in this area, but does not appear to be widespread yet. Periodic farmer testing should continue to monitor the situation.

A University of Nebraska Variety Test for cyst nematode has been planted on the Steve and Jerry Kennedy farm one mile east of Nemaha. A field day is planned for Tuesday, August 17 at 1 p.m.

One of the sites on the University of Nebraska Soybean Management Field Days (*page 146*) will be held on the Steve Kean farm, from the intersection of Hwy 75 and 62

west of Stella go 2 miles east and one-fourth mile south. This site was found positive for cyst nematode and one of the presentations will include information on cyst nematode management.

Persons interested in these field test results can contact me office for a copy, which groups sites by township and field section. Email [phay1@unl.edu](mailto:phay1@unl.edu), call (402) 223-1384, or visit the

Gage Extension Web site at <http://gage.unl.edu>

**Paul Hay**  
Extension Educator  
Gage County

### Soybean aphid numbers building

Soybean aphids have now been identified in central, east central and northeast Nebraska, generally in isolated field colonies. Fields should be scouted and if soybean aphids are found, monitored to determine whether populations are reaching treatment thresholds (approximately 250 aphids per plant).

Given the right conditions, aphid populations will grow rapidly in a matter of days. Generally, soybean aphids prefer temperatures in the 70s and 80s. Population growth would be expected to slow when temperatures reach the mid 90s, although beneficial insects would likely continue feeding.

Soybean aphids can transmit viral diseases such as alfalfa mosaic, soybean mosaic, bean yellow mosaic, peanut mottle, peanut smut and peanut stripe. Severe infestations can reduce yields 20% to 30%.

For more information about pest thresholds and treatment recommendations, see the May 28 *CropWatch* or the Extension publication, *Soybean Aphid Management in Nebraska*, NF04-599.



## Conifer can quickly dominate pastures

# Integrate red cedar control measures

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.

Eastern redcedar can be a serious problem on grasslands where it competes very effectively with pasture species for light and nutrients, reducing forage production. Heavy tree infestation interferes with livestock handling too. These adverse effects often lower rental rates or sale prices of infested grassland. On many sites complete coverage by eastern redcedar can be expected, resulting in total loss of production.

Control measures should be initiated as soon as possible, both to improve effectiveness and reduce total costs. In most cases, a single control measure can't provide long-term management of this species. However, if the control practices are integrated in a systematic manner, significant advances can be achieved. Control methods should be based on an integrated management approach, which includes a combination of manual, mechanical, cultural, biological and chemical methods.

**Manual control** involves pulling or digging trees. It can be very effective for small areas and is most efficient on trees up to 2 feet tall. **Mechanical control** methods such as cutting or mowing involve use of various hand held or motor-powered tools. Mowing of short trees can be also utilized as part of the regular cutting and haying process. The overall key to success in cutting or mowing is to cut the tree at the soil surface or below the lowest branches. Red cedar trees

Table 1: Percent red cedar control and grass injury at 100 days after treatment in individual-tree study at two locations (Center and St. James).

<sup>a</sup> Product name	Dose	<sup>b</sup> \$/acre (%v/v)	Cedar Control (%)		Grass injury (%)	
			Center	St. James	Center	St. James
Plenum	0.5	-	30	3	22	15
Plenum	1.0	-	84	69	37	42
Plenum	1.5	-	96	89	66	45
Garlon EV	1.0	-	25	14	13	7
Grazon P+D	2.0	11	90	90	44	52
Tordon 22K	1.0	16	94	92	74	64
Untreated check			0	0	0	0

<sup>a</sup>Treatments 1-4 are experimental premixes

<sup>b</sup>Cost per acre not available for treatments 1-4 because they are not marketed products yet.

that are cut low should not regrow. In addition, if the goal is to just reduce overall number of trees and reduce further spreading (eg. management of wildlife habitat), it is recommended to cut only female trees (the trees that produce berry-like fruits).

**Biological weed control** or bio-control is the use of natural enemies to reduce weed populations to economically acceptable levels. In the case of red cedar control, goats can be utilized as an effective bio-control agents for trees that are up to 3ft tall. Goats are known browsers, whose diet consists 75% of non-grassy species, which means they will not compete with your cattle for grass. They are also alternative tool for control of many noxious weeds, especially for leafy spurge. Keeping several goats at your pasture can help control many non-grassy species including red cedar trees.

**Prescribed fire** can be also used. This method is inexpensive and effective against smaller trees. However, its effectiveness declines as tree size increases. 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.

**Chemical control** should be also considered. Herbicides should be viewed as just another tool in the integrated approach tool box. Herbicides can be used for both 'individual-tree' spraying and broadcast application.

### Individual tree treatments

Currently there are several herbicides suggested for individual tree treatments in spring or fall. Examples include Tordon 22K, Velpar-L and Spike 20P. Tordon 22K can be used as a spot gun application of soil around the tree before rainfall. Rainfall will help uptake the chemical. The recommended rate is about 1 cc's (ml) per foot of tree height. Cost of Tordon 22K is about \$85 per gallon. It would cost about \$65 per acre plus labor (\$15 / hour) to spray 1500 trees that are about 2 feet tall. Velpar-L can be also used through a spot gun in Spring at the rate of 4 cc's (ml) per every

(Continued on page 145)

**Red Cedar** (Continued from page 144)

inch of tree diameter. Cost of Velpar is about \$65 per gallon. Spike 20P is another alternative but only in non-crop areas as a total vegetation control at the rate of 0.5 oz per every inch of stem diameter. Cost of Spike 20P is about \$9 per pound of product.

We also have conducted a preliminary study of individual tree treatments at two locations (Center and St. James) in northeast Nebraska. Excellent tree control (>90%) was achieved with Plenum (sold as "Surmount") at 1.5 % volume per volume (v/v), Grazon P+D at 2.0% (v/v) and Tordon 22K at 1.0% v/v (Table 1). All other treatments provided poor control (<50%). Grass injury in the form of temporary yellowing and burning of top growth was evident among all treatments especially for Tordon 22K (Table1). Cost of Grazon P+D and Tordon 22 K ranged from \$11-\$16 per acre (Table 1). Plenum and Garlon are experimental products, therefore they are not available for purchase.

Here are a few practical hints:

1) To help you determine volume per volume basis, for example the 1% v/v equals 1 gallon of product per 100 gallon of water (eg in large tanks). For smaller backpack sprayers use an equivalent of 1.3 oz of product per every gallon of water.

2) Apply about 1.5 oz of the above prepared spray solution per every foot of tree height. Walk around the tree and just spray enough to get a glisten (shine) on the leaf surface. Solution dripping off the tree indicates a rate that is

Table 2: Percent control of eastern red cedar at two locations (Center and St. James) as influenced by the tree height in broadcast study at 100 DAT.

Treatments	Dose/acre	b\$/acre	Tree height at Center			Tree height at St.James			
			0-1ft	1-2	2-4ft	0-1ft	1-2ft	2-4ft	>4ft
1. Plenum	3 pt	-	40	33	13	40	33	26	12
2. Plenum	4 pt	-	-	96	60	73	59	27	15
3. Plenum	5 pt	-	95	85	43	87	70	23	5
4. Garlon GS	4 pt	-	15	8	37	33	19	7	4
5. Garlon EV	4 pt	-	15	12	10	30	20	11	7
6. Garlon EV	6 pt	-	12	20	10	30	16	8	4
7. Grazon P+D	6 pt	21	95	47	18	93	53	40	16
8. Grazon P+D	8 pt	26	96	76	33	88	86	40	18
9. Tordon 22k	2 pt	22	95	50	16	79	63	42	25
10. Physical removal		120	100	100	100	100	100	100	100
11. Untreated check			0	0	0	0	0	0	0

<sup>a</sup>Treatments 1-6 are experimental premixes

<sup>b</sup>Cost per acre not available for treatments 1-6 because they are not marketed products yet.

<sup>c</sup>Physical removal was done by hand held saw and assuming labor cost of 15/hour

too high and a waste of time and money.

3) As an example, we calculated that 1 gallon of spray solution should cover 15 individual trees that are 6 feet tall at 20 PSI using XR8002 nozzles.

**Broadcast treatments**

In general the taller the trees the poorer the control. Excellent control (>90%) of up to 1 foot tall trees was achieved with Plenum (5pts), Grazon P+D (6pt & 8pt) and Tordon 22K (2pts) at both locations (Table 2). Same treatments, however, provided poor control (<50%) of taller trees (>2 feet). Plenum at 4 and 5 pts/acre provided good to excellent control of up to 2 ft tall trees. All other treatments provided poor control (<50%) regardless of the tree height (Table 2). Physical removal treatment (#10), provided best control (100%), however it was the most expensive method.

Cost of Grazon P+D and Tordon 22 K ranged from \$21-\$26 per acre. Plenum and Garlon are experimental products and can not be pur-

chased. Cost of physical removal treatment was about \$120 per acre. It was based on a calculation assuming that \$8 hours of work was needed to cut 1500 trees, 2 feet tall, per one acre and an hourly labor cost of \$15. For illustration purposes, 1500 trees per acre are equivalent of one tree per three square yards. Grass injury in the form of temporary yellowing and burning of top growth was evident among all treatments.

**Standing dead trees**

Standing dead trees will reduce the aesthetic value of the land, however there are several benefits of leaving dead trees stand for several years. They will a) provide some protection for grasses trying to become re-established; (b) help counter soil erosion and (c) protect against wind or snow. Trees that are four to eight feet tall do not have much of the red heartwood tissue so they will naturally deteriorate within three to six years .

**Stevan Knezevic**  
**Integrated Weed Management**  
**Specialist, Haskell Ag Lab, NEREC**

Daily updates of GDD, ET and precipitation data:  
[cropwatch.unl.edu/weather.htm](http://cropwatch.unl.edu/weather.htm)

# Soybean Management Field Days Aug. 10-13

The sixth annual Soybean Management Field Days will give new insights about continuing world events challenging farmers' ability to grow a quality crop at a profitable price in today's global economy.

"Soybeans American Style" Aug. 10-13 will offer producers research-based information to improve their soybean profitability, said Keith Glewen, University of Nebraska Cooperative Extension educator and event coordinator.

"By attending the Soybean Management Field Days, growers will take home unbiased, research-based answers," Glewen said.

Each day's program will include a tour of demonstration plots, speakers, lunch and Q&A.

Topics include: growing soybeans with higher oil/protein, putting more soybean dollars in your pocket, new and emerging disease and insect problems, and the secrets of making no-till work.

Presenters include university specialists, educators and industry consultants.

The field days begin at 9 a.m. and end at 2:30 p.m. at each site. Free registration is available the day of the event. Dates and locations are:

**Aug. 10 – Fairmont,** Paul Bettger farm, go to intersection of U.S. Highways 6 and 81. Go half mile east on Highway 6 to Sixth Avenue. Follow Sixth Avenue (Main Street) south through Fairmont. Field site is just outside of Fairmont on the west side of the road.

**Aug. 11 – Stella,** Steve Kean farm, located 7 miles north of Dawson or 11 miles south of Auburn on U.S. Highway 75. Or, from the intersection of Highways 75 and 62, go 2 miles east on Highway 62 and one-fourth mile south. Field site is on the west side of the road.

**Aug. 12 – Hooper,** Vernon Brandert farm; from Fremont, from U.S. Highways 30 and 77, 7.25 miles north on Highway 77 to County Road L (just north of weigh station),

1 mile west on County Road L, and 1/2 mile north on County Road 21.

**Aug. 13 – Lindsay,** Randy and Larry Sueper farm, from Lindsay, 2.5 miles east on U.S. Highway 91 to 400th Avenue, go 1.5 miles north on 400th Avenue and three-fourths mile east on 497th Street (blacktop road through St. Bernard). Field site is on east edge of town, south side of road.

Continuing education credits for

the Certified Crop Advisor program will be available.

For more information or to register, visit the 2004 Soybean Management Field Days Web site at <http://ardc.unl.edu/soydays.htm>, contact the Nebraska Soybean Board at (800) 852-BEAN or Glewen at (800) 529-8030.

The field days are sponsored by the Nebraska Soybean Board and Cooperative Extension.

## Regional soybean rust seminar July 28 in Fremont

This month the American Soybean Association is joining with USDA and state soybean associations to host seven regional seminars on Asian soybean rust and how producers can prepare for it. While this disease hasn't been found in North America, it's common in a large area of South America and expected to move northward (see the July 2 *CropWatch*).

One of the meetings will be held from 9:30 a.m. to 2 p.m. Wednesday, July 28, at the Holiday Inn Express in Fremont. This meeting is jointly hosted and sponsored by the Nebraska Soybean Association and the American Soybean Association and conducted in cooperation with USDA. Additional sponsors include: BASF Corporation, Bayer Crop Science, Dow Agrosiences, John Deer, Spicam Agro USA, and Syngenta Crop Protection.

I encourage producers and anyone involved in commercial agricultural advising to attend this meeting. One of the featured speakers will be Glen Harman of USDA, who has many years of experience with soybean rust. Other speakers will include representatives of USDA's Animal and Plant Inspection Service and other scientists and industry experts.

"With possible yield losses of 80% or even 90%, rust is one of the most pressing issues facing U.S. soybean farmers," said ASA President Ron Heck, a producer from Perry, Iowa.

Topics will include: an overview of the disease and what government and industry are doing to address it; a Brazilian grower's story of battling it; recommendations on detecting rust; application methods and equipment; and fungicide availability and efficacy.

Registration is free to current ASA/NSA members. A \$30 registration fee for nonmembers can be applied toward membership in the associations. A complimentary lunch will be served. For more information or to access a registration form, visit the American Soybean Association Web site at <http://www.soygrowers.com/rust/default.htm> or call 800-688-7692. Continuing Education Units are expected to be made available.

Fremont is just one of seven U.S. cities where the workshops will be held, including: Raleigh, N.C., Plain City, OH, Memphis, TN; Indianapolis, IN, Moline, IL, and Mankato, MN. Please take advantage of this great opportunity.

**Loren Giesler**  
Extension Plant Pathologist