

2005

Crop Watch No. 2005-19, August 12, 2005

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Brown Jasa, Lisa, "Crop Watch No. 2005-19, August 12, 2005" (2005). *Crop Watch*. 298.
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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

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No. 2005-19, August 12, 2005

Wheat variety selection first key to yields

Research indicates top Panhandle performers

The selection of which wheat variety to plant is one of the most important decisions a producer can make. Harry, the best yielding variety in the Panhandle the last three years, is more than 10 bushels higher yielding on average than the poorest yielding entry in the trials over the three-year period and nearly 5 bushels higher yielding than the average of all the entries. With nearly a million acres of wheat produced in the region, this makes the decision on which variety to grow potentially worth as much as 30 million dollars a year to the Panhandle alone.

The University of Nebraska has an outstanding variety testing program for wheat varietal adaptation within the state. This information is available annually on the variety testing home page at varietytest.unl.edu/whtst/2005/index.htm. A discussion of the

varieties with pictures of how they look in the field is available on the wheat virtual tour at www.panhandle.unl.edu/wheat/ and additional information on wheat is available at www.nebraskawheat.com/. The information is also published annually in hard copy form in our *Fall Seed Guide*, EC-103.

Decisions for the individual farm start with the type of wheat you plan to produce and the production system. Panhandle production systems are largely categorized as irrigated or dryland and the two basic types are hard white and hard red winter wheat. When looking at potential red wheats for dryland systems, Harry, Pronghorn, Goodstreak, Wahoo, Jagalene, Alliance and Millennium top the Panhandle list. Infinity CL and Above complement this group, but fit in a special classification as they are tolerant to Beyond herbicide and are registered as Clearfield lines (see

previous article on Clearfield technology).

White wheats that have done well in the region under dryland production include NuFrontier, Trego and Arrowsmith (see July 29, 2005 *CropWatch* article on getting started with white wheat). Some of the more stressful dryland areas demand a taller wheat to have adequate height at harvest and good residue after harvest. Goodstreak is a great option for replacing the traditional Buckskin in these regions. These taller varieties are also best at coming up when planted at greater depth to moisture. Pronghorn also has good emergence from soil depth, but is adapted to better growing conditions.

Irrigated production requires improved straw strength to prevent lodging and greater foliar disease resistance to tolerate the more moist

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Fall management key to controlling volunteer, reducing wheat disease

Growers don't often appreciate how important late summer and early fall management practices are in reducing the potential disease risk in next year's wheat crop. Two good disease examples that influenced Nebraska's wheat this year are wheat streak mosaic and common bunt.

This was one of the worst wheat streak mosaic years on record in the southern Panhandle. Widespread hail just before harvest in 2004 produced an abundance of volunteer wheat. Some growers took steps to control the volunteer wheat after harvest and others did not. Where the volunteer was not controlled, the

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Ag briefs

Doug Anderson, Extension Educator in Nuckolls and Thayer counties: The rain came a little too late here. Dryland corn will probably all be cut for silage. There is a little corn in some of it, but not enough to harvest. Dryland beans are in dire need of water. Sorghum is still hanging on.

Paul Hay, Extension Educator in Gage County: Warm night temperatures are moving irrigated corn fields along quickly with many fields being close enough to cease watering. Blue River irrigators are facing another shutdown at a critical time for soybean irrigation. Several more locations are reporting common bunt on wheat. While not at a high level, it clearly shows the need to use approved seed treatment fungicides (see page 172).

Del Hemsath, Extension Educator in Dakota, Dixon, and Thurston counties: Thunderstorms moved through northeast Nebraska on August 3 giving some areas 0.5 to

Spider mite update

I failed to mention in the corn spider mite story in the July 29 issue of *CropWatch* that there is a new miticide, Oberon, labeled for both Banks grass mite and twospotted spider mite control in field corn. Oberon 2SC, by Bayer Crop Science, is based on a new class of insecticide chemistry, tetrone acids. The active ingredient is spiromesifen. Oberon is active against all stages of spider mites, including the egg stage. It is a relatively selective insecticide, with activity primarily against white flies, psyllids and spider mites.

On field corn it is labeled for use at 5.7-8.5 fl.oz per acre. The label recommends a minimum application volume of 5 gallons per acre for aerial application and 10 gallons per acre for ground application. It is also labeled for use in chemigation.

Bob Wright
Extension Entomologist

The Gudmundsen Sandhills Lab near Whitman will host an open house 8:30 a.m. to 4 p.m. Aug. 31. For details see the Aug. 26 *CropWatch* or go online to westcentral.unl.edu/GSL/

1.5 inches of rain. There was some hail but none that would be considered serious for crops. Dryland corn is looking good on non-sandy areas. Soybeans are looking okay but beginning to show stress from lack of moisture. Alfalfa hay is off for the third cutting; the last cutting will depend on rainfall. Pastures look moisture-stressed.

Tom Dorn, Extension Educator in Lancaster County: Dryland corn is in the dough to mid-dent stage. Most ears are filled nearly to the tip. Dry matter is still accumulating in the kernels and the corn would benefit from several inches of additional rain, provided it comes soon.

Irrigated soybeans are at R5 to R6 stage (beginning to full seed fill) but dryland beans are behind irrigated beans with most dryland beans at R4 (full size pods even at the upper nodes). When squeezed between fingers, the beans are barely palpable inside the pod, even on the lower stalk.

The yield potential is there but we are going to need more rainfall if we are going to make much of a dryland soybean crop. I continue to see low numbers of soybean aphids. Bean leaf beetle damage to leaf tissue is continuing but is below treatment levels. People are starting to plant alfalfa into wheat stubble ground.

Gary Lesoing, Extension Educator in Nemaha County: Following the July 25-26 rain, soybeans have been developing nicely, setting on pods and continually growing vegetatively. Corn continues to develop and is showing much less stress even during some of the hot days.

Parts of Nemaha County have received some significant rainfall (over 1 inch) in the past week as well. Most of the third cutting alfalfa was a short crop, but by cutting it, farmers are hoping for a better fourth cutting. The rain helped green up pastures as well. Soybean pests and diseases have generally been light. I have seen a few grasshoppers, bean leaf beetles and stink bugs in soybean. A producer had an irrigated double cropped soybean field with Phytophthora and three-year white grubs. The combination of these two pests was reducing his stand significantly.



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Crop Watch is published from March to November by Cooperative Extension and Communications and Information Technology in the University of Nebraska Institute of Agriculture and Natural Resources, PO Box 830918, 108 Agricultural Communications Bldg., UNL, Lincoln, NE 68583-0918. To order a print subscription or to change your address, write to *Crop Watch* at the above address or call (402) 472-7981. The newsletter also is available on the Web at cropwatch.unl.edu

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Lisa Jasa, Editor; Email: ljasa1@unl.edu

Panhandle performers *(Continued from page 169)*

conditions. Under irrigation, it is interesting to note that three of the top lines are white wheats — Nu Horizon, Nu Frontier and Antelope. Platte is another white wheat that is not as well adapted to the region, but has special characteristics that sometimes bring a premium in the market and make extra input costs such as fungicide application to control stripe rust worthwhile.

For the red wheat producers the top lines include Wesley, Jagalene, Dumas and 2145. Wesley and Jagalene have been the more consistent performers. 2137 is still well adapted to irrigated conditions with the exception of stripe rust susceptibility, but with the increased prevalence of this disease we only recommend it to producers who plan to use a fungicide program. It is interesting to note that one of our top performers under irrigation this year was a blend of Jagalene, Wesley and 2137 (see May 27, 2005 article on blends).

While we continue to work to add wheat streak resistance to our varieties, along with improved foliar leaf disease resistance, producers who plant the varieties suggested here should reap most of the benefits from selecting the best varieties currently available.

David Baltensperger, Extension Crop Breeding Specialist, PHREC

Average wheat yields and variety performance in a three-year wheat variety trial conducted in the Nebraska Panhandle, 2003-2005. (W) indicates a white wheat variety.

Brand	Variety	Grain Yield	Seed (lb)	Percent Protein	Bushel weight	Height (inches)
—	Harry	47.0	15.12	10.3	57.6	27.3
Gen Mills	NuFrontier (W)	46.4	15.69	10.5	60.7	27.4
—	Infinity CL	44.8	14.71	11	59.2	28
—	Pronghorn	44.6	14.69	10.8	60.7	31
—	NW99L7068 (W)	44.4	15.1	10.4	58.1	25.2
—	Goodstreak	44.4	15.09	10.8	60.9	31.6
—	Wahoo	44.3	14.89	10.6	57.9	27.4
AGRIPRO	Jagalene	44.1	14.21	10.9	60.4	26
—	Alliance	44.0	15.51	10.5	59	26.7
—	Above	43.7	14.4	10.6	58.2	26.2
—	Trego (W)	43.6	13.83	10.7	59.8	24.8
—	NE99495	43.5	15.15	10.7	59	27.1
—	Millennium	43.5	14.85	11	60.2	29
—	2137	42.6	14.56	10.6	59.1	26.6
—	Lakin (W)	42.3	14.53	10.6	60	26.8
—	Antelope (W)	42.2	14.96	10.9	59.3	25.5
—	Buckskin	42.0	14.67	10.9	60.2	32.3
Gen Mills	NuHorizon (W)	41.8	14.96	10.9	60.9	24
AGRIPRO	AP502CL	41.6	14.46	10.8	57.1	25.1
—	Halt	40.8	16.28	11.6	57.7	25.2
—	Wesley	40.6	14.8	11.5	57.8	24.1
—	Arapahoe	40.1	16.01	11.3	59	28.1
—	Nuplains (W)	39.5	15.08	11.1	61.7	24.1
—	Jagger	39.4	15.44	11.4	57.8	26.2
—	Arrowsmith (W)	39.3	14.49	11.3	60.2	29.6
—	2145	38.5	14.86	11.3	59.9	24.6
—	Scout66	38.3	14.19	11.2	59.5	31.9
—	Turkey	36.9	15.28	11.3	59.7	32.8

New Nebraska wheat varieties for 2006

The most recently released wheat varieties from the Nebraska Wheat Program are Infinity CL and Hallam. Infinity CL had good yields across the state in 2005. Unfortunately, the seed supply for planting Infinity CL this fall is extremely limited. Infinity CL is a Clearfield wheat which means it is resistant to the herbicide Beyond.

Hallam is a wheat variety best suited to eastern Nebraska, where it performed well when moisture was adequate. There will be a limited amount of Hallam seed available for planting this fall.

The next most recently released varieties of wheat are Goodstreak and Harry. Goodstreak is a tall wheat suited to dryland production. It performed well in 2005 across the state. Goodstreak would not be a good choice for high management fields because it is too tall to resist lodging under high productivity. Seed of Goodstreak is readily available for fall planting.

Harry performed very well where stripe rust was not a problem. In many parts of the state, however, stripe rust caused yield reductions.

Ample seed of Harry is available for planting this fall.

Several experimental varieties performed very well across the state. Seed of those varieties will not be available for planting for at least two years. If these varieties continue to perform well, one of them may be your next new variety. For more information on wheat variety performance in Nebraska, visit the UNL Web site at varietytest.unl.edu or pick up a *UNL Extension 2005 Fall Seed Guide* from your extension office.

Len Nelson, Extension Crop Variety and Seed Production Specialist

Volunteer wheat *(Continued from page 169)*

wheat curl mite and the wheat streak mosaic virus built up to tremendously high levels during the summer. Any wheat that was planted near these volunteer fields last fall became a target for the mites and wheat streak mosaic.

A recent outbreak of common bunt is another example of where a failure to follow good disease management practices last fall resulted in economic loss at harvest. There have been at least a half dozen recent incidences in southeast Nebraska where growers have had their wheat discounted or even rejected at the elevator because it contained common bunt. This gets back to using bin-run seed and not having it treated with a fungicide before planting (see *Table 1*).

Fall wheat disease management practices are critical in preventing losses from wheat streak mosaic, common bunt and other serious wheat diseases. These practices revolve around four general management principles:

- ♦ Control weeds and volunteer wheat at least three weeks before planting in adjacent or nearby wheat stubble fields to reduce the risk of wheat streak mosaic.

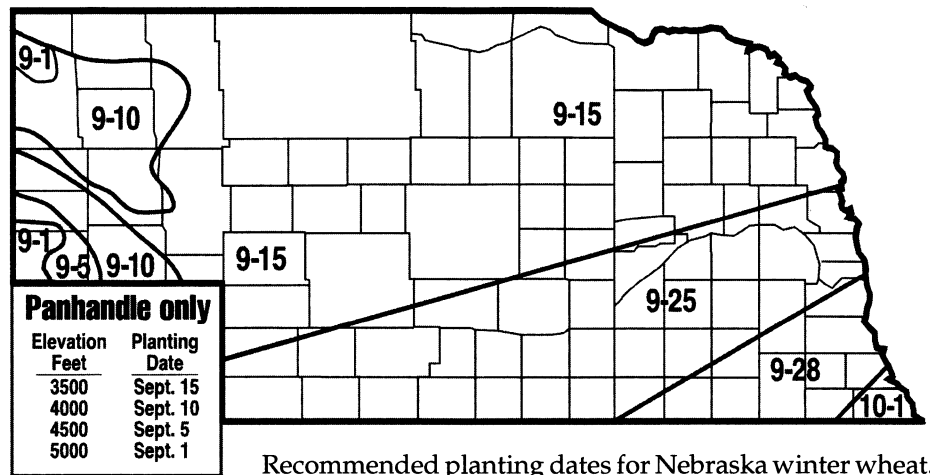
- ♦ Pick an adapted variety or varieties that compliment each other and have a good disease resistance package for rusts to reduce the

Manure management, marketing workshops

A series of Extension workshops will address the value of manure for crop production and how to better manage and market it. The series includes three workshops which will be conducted at various locations.

From Brown to Gold: Nebraska's Manure Value Field Days will give livestock producers the information and skills needed for management planning of manure nutrients. The morning classroom program will focus on developing and using a

(Continued on page 174)



Recommended planting dates for Nebraska winter wheat.

potential for having to spray next spring.

- ♦ Select good quality, cleaned and treated seed and plant at the proper time to lessen the risk of crown and root rot, wheat streak mosaic, soil-borne mosaic, common bunt and loose smut.

- ♦ Plant into a firm, mellow seed bed to ensure good seed to soil contact and lessen the potential for

winter kill and crown and root rot.

These four management principles constitute a proactive approach to disease prevention, and with diseases like wheat streak mosaic, soil-borne mosaic, common bunt, loose smut and crown and root rot, these are the only methods of control. Curative measures are not available for these diseases.

John E. Watkins
Extension Plant Pathologist

Table 1. A partial list of seed treatment fungicides for control of fungal seed diseases such as common bunt, loose smut, black point and scab in wheat.*

Fungicide common name	Some trade names and application method** (D, DB, M, L, S, RTA, RTU)
Carboxin + Captan	Enhance (DB)
Carboxin + Maneb	Enhance Plus (DB); DB-Green+Vitavax (D/DB)
Carboxin + PCNB	Vitavax - PCNB (S/M)
Carboxin + Thiram	Vitavax 200 (S/M); Vitaflow 280 (S); RTU-Vitavax-Thiram (L/S)
Carboxin + Imazalil + Tiabendazole	RTU Vitavax Extra (S)
Difenoconazole + Mefenoxam	Dividend XL (S), XL RTA & Extreme (S); Incentive RTA
Metalaxyl + PCNB + Carboxin	Prevail (DB)
Tebuconazole + Metalaxyl	Raxil MD & XT (S)
Tebuconazole + Metalaxyl + Imazalil	Raxil MD Extra (S/M)
Tebuconazole + Thiram	Raxil-Thiram (L/S)
Triadimenol	Baytan 30F (S)
Triadimenol + Thiram	RTU-Baytan-Thiram (S/M)

* Fungicides listed represent the best information available. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by UNL Extension is implied.

** Application method: D = Dust, DB = Drill Box, M = Mist, L = Liquid, S = Slurry, RTA = Ready to Apply and RTU = Ready to Use.

Soil test and wheat fertilizer recommendations

Many of Nebraska's wheat growing areas have improved soil water levels compared to the past few years, providing some optimism for the 2006 crop. With an improved yield potential but with unchanged prices, what's the best strategy for your fertilizer program? Soil testing is still the best method to determine fertility status and the need for additional nutrients. Adequate phosphorus (P) is required for early plant development and tillering. Nitrogen management is essential to avoid low yields or protein and to maintain profitability with increased nitrogen prices.

Nitrogen

Soil samples for nitrate-N to at least a three- or four-foot depth are suggested. Surface soil samples of the top two feet have limited value for improving nitrogen recommendations but are still better than no sample (see NebGuide 91-1000, *Guidelines for Soil Sampling*).

The current nitrogen algorithm for wheat bases nitrogen rate on both wheat and nitrogen price (see *Fertilizing Winter Wheat I: Nitrogen, Potassium, and Micronutrients*, NebGuide G02-1460). Nitrogen prices are considerably higher this year than last year. Current projections show anhydrous ammonia near \$440/ton (\$0.27/lb of N), urea near \$360/ton (\$0.39/lb N) and 32% N solution near \$260/ton (\$0.41/lb N). When current application costs are considered (\$7/ac for ammonia, \$4.50/ac for liquid or dry), this pushes nitrogen costs to \$0.42-\$0.56/lb of nitrogen for these sources. The higher nitrogen cost decreases optimum nitrogen rates.

The fallow period has been the traditional time for nitrogen placement and anhydrous ammonia has been used because it is the lowest cost source. During the past few years many farmers have changed to dry or liquid nitrogen sources due to dry conditions or source preference to limit preplant nitrogen and possibly risk. Crop and soil moisture conditions are monitored through the late fall, winter and early spring and then additional nitrogen is topdressed during spring. This spreads out risk, but it comes with a higher price tag. A comparison of 60 lb nitrogen and 30 lb phosphate including application costs is shown below. Fertilizer prices stated above were used as well as an application cost of \$3.50/ac for each source. Ammonia application is higher but it is often put



No-till air seeder and fertilizer application unit on the Mark Watson farm, Alliance, Nebraska.

on with another tillage operation, so equal application costs were used.

Split application including spring nitrogen may reduce risk but not cost. Preplant programs cost \$29 to \$34 per acre while the fall investment for a spring topdress program is only \$23 an acre. The additional cost of dry or liquid programs that use spring application is increased product and application costs of almost \$10 per acre. Individual producers must consider these cost as they review risk.

Phosphorus

Current phosphorus recommendations for wheat (NebGuide G02-1460) base the phosphorus rate on the price of both wheat and phosphorus. Three basic methods for phosphorous application to wheat are: 1) applying directly with the seed; 2) broadcasting and incorporating prior to seeding; and 3) dual placement or applying liquid phosphorus (10-34-0) together with anhydrous ammonia prior to seeding. The advent of air seeders with seed and fertilizer distribution provide another placement option. These variations greatly influence fertilizer/seed contact, which may affect germination. Fortunately, superphosphate (0-45-0) and ammonium phosphate (18-46-0, 11-52-0) have little effect on seedling emergence because of the low salt content.

Banding phosphorus fertilizers results in greater fertilizer efficiency compared to broadcasting. Dual placement performs equally to seed-applied phosphorus.

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Options and costs for applying nitrogen-phosphorus combinations of 60 lb N + 30 lb P₂O₅

Product and application time	Cost (including application)
82-0-0 (51 lb N) + 10-34-0 with seed	\$28.61 per acre
46-0-0 (54 lb N) + 11-52-0 broadcast preplant	\$34.33 per acre
46-0-0 (24 lb N) + 11-52-0 broadcast preplant (fall)	
then 46-0-0 (30 lb N) spring broadcast	\$22.60 fall + \$15.23 spring = \$37.83 per acre
32-0-0 (21 lb N) + 10-34-0 broadcast preplant	
then 32-0-0 (30 lb N) spring broadcast	\$23.50 fall + \$15.68 spring = \$39.15 per acre

Fertilizing wheat

(Continued from page 173)

The normal ammonia application depth of 4 to 6 inches is also a good depth for phosphorus application. Dual placed phosphorus can be readily applied with standard ammonia applicators equipped to dispense 10-34-0. Double tubes for ammonia delivery and liquid fertilizer phosphorus are required.

Zinc

When soil zinc levels are less than 0.25 ppm (DTPA Test), wheat may respond to Zinc. It usually will not be economical to broadcast 10-15 pounds of zinc from zinc sulfate to increase the soil test level. If the soil test is very low in zinc and 10-34-0 is being row-applied, adding zinc to the 10-34-0 works well. A number of zinc sources are available to include in 10-34-0 and all are equally effective. If 11-52-0 is used, dry zinc sulfate can be mixed with the phosphorus. One-half to one pound of zinc per acre is usually sufficient.

Sulfur

Most fine textured soils in Nebraska have adequate organic matter and/or residual sulfate sulfur for maximum yield. The exception may be sandy soils, especially irrigated sandy soils. A broadcast application of 8 to 15 lb sulfur per acre is usually sufficient. The method of sulfur application and the fertilizer source used is an important decision. If fertilizer is row- (seed) applied, 10-34-0 and thiosulfate-sulfur should NOT be mixed and applied in the seed. Thiosulfate can severely injure wheat seedlings and reduce stand. Dry fertilizer sources with sulfate can be mixed safely with 11-52-0 if the total nitrogen applied is less than 12 to 15 lb per acre.

Chloride

Nebraska experiments have not shown wheat response to chloride.

**Gary Hergert, Extension
Nutrient Management and Soil
Quality Specialist
Panhandle REC**

Correct timing of harvest makes for the best silage

Are you looking to use more corn silage this year to help cheapen your ration? It can work, but only if you time harvest correctly.

Often high-quality corn silage is an economical substitute for much of the grain in finishing and dairy rations, especially when grain prices are high. The key here is the phrase "high-quality", because all too often we fail to harvest and store silage in ways that give the best feed value.

Today, I want to emphasize timing of harvest. Much of the corn silage in our area is cut too late. Timing needs to be based on moisture content of the silage. Silage chopped wetter than seventy percent moisture can run or seep and often produces a more sour, less palatable fermentation. More frequently, though, we chop corn silage too dry, below 60% moisture. Then it's difficult to chop and pack the silage adequately to force out air. The

silage heats, protein and energy digestibility declines, and spoilage increases.

Many corn hybrids are at the ideal sixty to seventy percent moisture level as corn kernels reach the one-half milkline. This guide isn't perfect for all hybrids, however, so check your own field independently. Good silage usually can continue to be made up until black layer formation.

One reason it is good to chop silage when corn kernels are between half milkline and black layer is the digestibility of this feed. Drier, more mature corn grain tends to pass through the animal more easily without digesting. Also, older leaves and stalks are less digestible.

Chop your silage between half milkline and black layer to get better feed and better profits.

**Bruce Anderson
Extension Forage Specialist**

Manure workshops (Continued from page 172)

manure nutrient application plan and understanding Nebraska Department of Environmental Quality regulations related to land application of manure. The afternoon field program will address manure and soil sampling and applicator calibration. Participants who attend both sessions will receive an NDEQ land application training certification. Registration is \$30 for the full-day program and lunch or \$20 for the afternoon field program.

The *Manure Merchandising Workshops* will highlight strategies for marketing manure to off-farm markets. *Manure Value for Crop Production Workshops* will teach crop producers how to gain the greatest economic value from using manure on their land and how to use manure with fertilizer to optimize their nutrient management plan. The *Manure Merchandising Workshops* and *Manure Value for Crop Production Workshops* are free and include

resources. Pre-registration is required.

See *CropWatch* (cropwatch.unl.edu) for further dates and details.

August meeting dates include:

Aug. 22 — *From Brown to Gold*, 9:30 a.m.-3 p.m., Dawson County Extension Office, Lexington, David Stenberg, (308) 324-5501

Aug. 23 — *Manure Merchandising*, 2-5 p.m., Fire Hall, Pender, Del Hemsath, (402) 584-2819

Aug. 23 — *Manure Value*, 6-8:30 p.m., Fire Hall, Pender, Del Hemsath, (402) 584-2819

Aug. 30 — *Manure Value*, 3-6 p.m., Methodist Church, Phillips, Darrel Siekman, (308) 946-3843

Aug. 31 — *Manure Merchandising Workshop*, 1-4 p.m., Community Building, Adams, Paul Hay, (402) 223-1384

Aug. 31 — *Manure Value for Crop Production Workshop*, 6:30-8:30 p.m., Community Building, Adams, Paul Hay, (402) 223-1384

Bean leaf beetle -- late season management

Although the status of the soybean aphid has taken much of our attention lately, growers should not forget the other major soybean pest in Nebraska -- the bean leaf beetle. We will soon be seeing activity of the true second generation of beetles as they emerge and feed on leaves and developing pods. Following is a review of the beetle's biology and suggestions for managing it.

Beetle biology

Two generations of bean leaf beetles develop each year in Nebraska. The second generation overwinters as adults and are the

ones seen early in the year feeding on seedling soybeans. These beetles feed, mate, lay eggs and die in early-mid June. Usually there is a distinct period from mid June to early July when few if any beetles are present in the field, before the first generation emerges. Total developmental time from egg to adult can range from 25 to 40 days. Because of this range of development, it is common to see adults from the first generation and the second generation in the field at the same time. In other words, the generations overlap and beetles will be present at some level from mid-July until the end of the growing



Bean leaf beetle

Table 1. Economic thresholds in beetles per row foot for R5-R6 (beginning pod and full seed) soybeans in 30-inch rows.

Soybean Value	Pest Management Costs Per Acre					
	\$7.00	\$8.00	\$9.00	\$10.00	\$11.00	\$12.00
\$4.50	7.1	8.1	9.1	10.1	11.1	12.1
\$5.00	6.4	7.3	8.2	9.1	10.0	10.9
\$5.50	5.8	6.6	7.4	8.3	9.1	9.9
\$6.00	5.3	6.1	6.8	7.6	8.3	9.1

Table 2. Economic thresholds in beetles per row foot for R5-R6 (beginning pod and full seed) soybeans in 7-inch rows.

Soybean Value	Pest Management Costs Per Acre					
	\$7.00	\$8.00	\$9.00	\$10.00	\$11.00	\$12.00
\$4.50	1.7	1.9	2.1	2.4	2.6	2.8
\$5.00	1.5	1.7	1.9	2.1	2.3	2.5
\$5.50	1.4	1.5	1.7	1.9	2.1	2.3
\$6.00	1.2	1.4	1.6	1.8	1.9	2.1

Table 3. R6 Economic Thresholds (beetles per sweep) for 30-inch rows. Numbers in parenthesis are for drilled, 7-inch row soybeans.

Soybean Value	Pest Management Costs Per Acre			
	\$6.00	\$8.00	\$10.00	\$12.00
\$5.00	4 (3)	5 (4)	6 (5)	8 (5)
\$6.00	3 (2)	4 (3)	5 (4)	6 (5)
\$7.00	3 (2)	4 (3)	4 (3)	5 (4)

season. Because of this overlap, it is important to regularly monitor beetles to determine population shifts. This information can then be used to make more informed management decisions.

Bean leaf beetles will feed on soybean leaves throughout the season, but leaf feeding seldom causes yield loss. Most damage (economic yield loss) occurs when beetles feed on developing pods. This yield loss can occur in several ways. Pods may be clipped from the plants, but this is not the primary cause of yield loss. Many flowers and pods are aborted naturally and to blame pod loss on bean leaf beetle feeding may be a costly mistake. Beetles normally injure soybean pods by feeding on the outside layer, leaving a thin layer of tissue still covering the seed. Usually, except with very small pods, they won't eat into the developing seed. Fungal pathogens may enter the pod from the feeding sites, causing seeds to appear shrunken, discolored, and moldy, which can result in dockage. After full pods are formed and seeds begin developing,

(Continued on page 176)

Bean leaf beetles *(Continued from page 179)*

soybeans are most susceptible to yield loss from pod feeding.

The best time to sample is before significant pod feeding occurs, but after second generation beetles have emerged. Second generation bean leaf beetles are emerging and beetle numbers will be approaching their highest levels for the summer. Beetle numbers will slowly decline as beans mature and beetles move to overwintering sites.

Economic thresholds have been developed for both drop cloth (beetles per foot of row) or sweep net (beetles per sweep) sampling (*Tables 1-3*). Perhaps the most accurate way to sample beetles is with a drop (or shake) cloth. A drop cloth is a 3 x 3 ft piece of muslin or plastic attached on each side to dowel rods. Hold one rod against the base of the plant and lay the cloth between the rows. Shake the plants against the cloth to knock off the insects, and count the beetles. Remember to estimate the number per row foot, so if you use a three-foot cloth divide your total by three. Sample several areas of the field to get a more accurate estimate. In narrow row beans you can still

sample with a drop cloth, but the procedure is slightly different. Set the rod at the base of the row of plants and lay part of the cloth on the ground and hold the rest of the cloth upright or over the opposite row to be sampled. Shake the soybeans against the upright cloth, and then count the beetles knocked down on the bottom of the cloth.

Thresholds are based on the number of beetles per foot of row, which varies according to total application cost and the crop value per bushel.

Tables 1-3 show economic thresholds for beans in 30- and 7-inch rows. To use the tables find the number that fits both crop value and application costs. For example, if you set the value of your soybeans at \$6 per bushel and your application costs would be \$9, you would need 6.8 or more beetles per foot of row to justify an application in 30-inch row beans or 1.6 or more beetles per foot of row in 7-inch row beans.

Sweep at least five randomly selected sites. Walk through the field at an even pace, performing about 25

sweeping arcs. The best sweeping action for bean leaf beetle is a consistent upward motion through the foliage, using as much force as needed to move the net smoothly through the foliage. Bean leaf beetle activity varies during the day. Activity patterns suggest the best times to sample are around mid-morning or in the afternoon. Try to maintain a similar sampling time in each field to eliminate variability.

Economic thresholds for reproductive stage soybeans other than R6 are probably higher (more beetles are needed to justify a treatment). This is because pods on plants past R6 are maturing and there is less green pod tissue available for beetle feeding, and plants in earlier reproductive stages have greater yield compensation potential than those in R6 or older.

**Keith Jarvi, Integrated Pest
Management Assistant
Northeast REC
Tom Hunt**

**Extension Entomology Specialist
Haskell Ag Lab, Northeast REC**

Farm product prices received by farmers

The preliminary United States All Farm Products Index of Prices Received by Farmers in July, at 119, based on 1990-92=100, decreased 1 point (0.8%) from June. The Crop Index is down three points (2.5%) while the Livestock Index was unchanged.

Producers received lower commodity prices for lettuce, cattle, grapes, and broccoli. Higher prices were received for corn, asparagus, eggs, and milk. The overall index is also affected by the seasonal change based on a three-year average mix of commodities a producer sells.

The preliminary All Farm Products Index is down 5 points (4.0%) from July 2004.

Table IV. Insecticides registered for bean leaf beetles

Bean leaf beetles can be controlled by several insecticides. Be aware that most have 14- day or more pre harvest intervals (phi). Here is a table of insecticides for bean leaf beetle control.

Restricted Use	Product Name	Rate (formulation/ac or lb/ac)	Pre-harvest interval (days)
Yes	Asana XL	5.8 - 9.6 oz	21
Yes	Baythroid	1.6 - 2.8 oz	45
No	dimethoate	1 pt	21
No	Lorsban 4E	1-2 pts	28
Yes	Lannate WSP	0.25 - 0.50 lb	14
Yes	Lannate LV	3/4 - 1 lb	14
No	Larvin 3.2F	18-30 oz	28
Yes	Mustang Max	2.8 - 4.0 oz	21
Yes	PennCap-M	2-3 pts	20
Yes	Pounce 3.2 EC	2-4 oz	60
Yes	Pounce 25 WP	3.2-6.4 oz	60
No	Sevin XLR Plus	0.5 - 1 qt	21
No	Sevin 80 S	5/8 - 1 1/4 lb	21
Yes	Warrior	1.92 - 3.2 oz	45

Stop in at Husker Harvest Days

UNL to spotlight ag innovations, student options

Be sure to stop by the UNL Husker Red building during Husker Harvest Days Sept. 13-15 to see how UNL Extension programs are covering a wide range of issues and topics pertinent to today's agriculture. Our easily seen "Husker Red" metal building is located at Lot number 325 on the Husker Harvest Days grounds near Grand Island.

UNL's Institute of Agriculture and Natural Resources will have more than two dozen exhibits and displays covering topics and issues that impact a large cross-section of Nebraskans. We welcome the opportunity to meet with the public and answer their questions at Husker Harvest Days and are proud that we've been a part of the show since the very beginning in 1978.

Some of the exhibits will focus on concerns unique to this year, including

- Soybean Rust: UNL's Mobile Diagnostic Lab Monitors Nebraska's Soybeans
- Food Processing Center: Adding Value to Your Commodity
- Managing Soybean Aphids in Nebraska
- Precision Ag: Technology in Crop Production
- Food Safety and Thermometers: How Hot is Too Cold?
- Livestock Waste Controls for Nebraska Feedlots
- Enhancing Family Strengths During Stressful Times
- Leadership, Teacher Education, and Journalism
- Using Climate Forecasts to Improve Ag Decision-Making
- Economics of Agriculture and Natural Resources
- WeedSoft: High Tech Integrated Crop Management
- UNL Classrooms and Courses: Investing In You For Your Career

Other UNL Extension exhibit topics include:

- Agricultural Tax Management
- Antique Tractors: Memories in Paint and Metal
- Lake Algae Testing, Staying Safe For Fun
- Nebraska's Water: Our Precious Resource
- New Seed Varieties Grow For You
- Discover 4-H, Discover You
- LEAD: Developing Nebraska's Leaders
- Nebraska's Livestock: More Gain per Pound
- Pesticide Storage Security

Explore educational opportunities at UNL and visit with representatives from the UNL College of Agricultural Sciences and Natural Resources, the Nebraska School of Technical Agriculture (Curtis), the School of Natural Resources, and the Department of Agronomy and Horticulture.

IANR's *Market Journal* program will deliver live, video-streaming Internet programs from its studio at the Husker Red building. Attendees are invited to be part of the studio audience for these programs that are broadcast on the Internet at MarketJournal.unl.edu. One hour programs will be broadcast twice each day during the show. Times and topics of interest include:

- Tuesday, 11 a.m. and 2 p.m. *Water Rights and Use Issues for Irrigators*
- Wednesday, 11 a.m. and 2 p.m. *Take Control of Your Marketing*
- Thursday, 11 a.m. and 2 p.m. *What You Should Know About Buying Equipment*

**Larry Schulze, Extension Pesticide Education Specialist
IANR Husker Harvest Days Coordinator**

Research shows potential of winter canola as a bio-diesel source

Bio-diesel has rapidly emerged as an answer to reducing sulfur emission problems from diesel engines. As little as a 3% bio-diesel blend or B-3 goes a long way toward reducing diesel emission problems. This is driving a rapid expansion of the market.

To provide producers in western Nebraska more information about their cropping options related to bio-diesel, UNL researchers are studying crops such as brown mustard, canola, camelina and crambe. Spring forms of brown mustard and canola have been commercially produced for the past two seasons. Development of more winter adapted germplasm, including Sumner, Wichita and Abilene winter canola, has greatly expanded the potential for these crops in the region.

For the past two years winter trials have yielded approximately 180% of the spring types under limited irrigation with an average of nearly 4,000 lbs/acre and a high yielding plot of over 5,000 lbs/acre.

More than 20,000 acres of these varieties were planted in the High Plains in 2004 and production is expected to increase rapidly. Now is the time to prepare ground for planting and line up a seed supply and market since winter types need to be planted by late August.

Progressive Producers is willing to market a limited quantity of winter type canola this year from western Nebraska. For more information contact Bob Kelly at Crossroads Cooperative, 308-249-3896, bob@crossroadscoop.com or Dan Laursen, president of Progressive Producers, 308-487-5541, dlaursen@bbc.net. For agronomic information contact Charlie Rife, charlie@gobluesun.com, or David Baltensperger, dbaltensperger1@unl.edu. See the August 6 *Market Journal* (online at marketjournal.unl.edu) for interviews with producers and researchers growing these crops.

David Baltensperger, Extension Crop Breeding Specialist, Panhandle REC

Tours spotlight water-saving irrigation strategies

Following several years of dry weather and increasing water restrictions, Nebraska producers are searching for irrigation strategies that can help them get the most benefit from the water that's available. University of Nebraska–Lincoln Extension Educator Steve Melvin listened to their questions and established demonstration plots around the state to explore and test irrigation options specifically adapted for Nebraska crops, soils, and irrigation issues.

"The Irrigation Strategies Field Tour Series focuses on showing farmers and crop consultants management strategies to conserve water. The primary focus is on demonstrating research-based irrigation management strategies on farmer fields," said Melvin. His goal is to make irrigation scheduling and management as easy as keeping fuel in the tank using the fuel gauge.

Field tours will be conducted at eight sites in August and early September. Plot locations include: Arapahoe, Benkelman, Madrid, Cozad, Axtell, Holdrege, Curtis, and Ainsworth.

Field tour topics, which will vary by location, include: furrow irrigation strategies that improve efficiency for full and limited water use; how time of application and amount of water applied affects crop yield; soil moisture monitoring equipment; yield effects of skip row planted corn; predicting the last irrigation; calculating water applied using a flow meter; viewing the UNL irrigated corn variety test plot; and how amount of water and nitrogen applied affects crop yield.

For more information about the Irrigation Strategies Field Tour Series, contact UNL Extension Educator Steve Melvin at (308) 367-4424 or smelvin2@unl.edu.

Schedule

Tour sites and starting times follow:

Arapahoe, Wednesday, August 17, 6 p.m. Location: 0.25 mile east of Arapahoe on the north side of U.S. Highways 6 and 34.

Benkelman, Monday, August 22, 6 p.m. MDT. Location: 12 miles north of Benkelman on Nebraska Highway 61 or 14 miles south of the intersection of U.S. Highway 6 and Nebraska Highway 61 (turn at Alsbury sign) and four miles west to the intersection of 718 Rd and 334 Ave. Turn south and the plot is 0.25 mile down, on the east side.

Madrid, Tuesday, August 23, 6 p.m. MDT. Location: go 4.5 miles south of Madrid to the intersection of 756 Rd and 338 Ave.; the plot is on the east side of the road.

Cozad, Thursday, August 25, 10 a.m. Location: south of Cozad at the intersection of I-80 (Exit 222) and Nebraska Highway 21, south three miles and one mile west. The plot is on the north side of the road.

Axtell/Holdrege, Tuesday, August 30, two-part tour. The first

part of the tour will start near Axtell at 10 a.m. and the second part will start near Holdrege at 1 p.m. Location 1: From Axtell, on U.S. Highways 6/34, one mile east and one and one-quarter mile north. The plot is on the east side of the road.

Location 2: from the intersection of U.S. Highways 6/34 and 183 in Holdrege, go 3.5 miles south; plot is on the east side of the road.

Curtis, Thursday, September 1, 1 p.m. Location: from the intersection of Nebraska Highway 23 and Center Street (flashing light) in Curtis, go north six blocks to the dead end, turn east (right) one-half block, then north (left) and follow road 0.5 mile. The plot is on the east (right) side of the road.

Ainsworth, Wednesday, September 7, 6 p.m. Location: from Ainsworth, go 5 miles east to the intersection of U.S. Highways 183 and 20, then north 7.5 miles just before the road turns to the west; plot is on the east side of the road.

UNL offers late season crop diagnostic training

An Aug. 24 University of Nebraska–Lincoln Crop Management and Diagnostic Clinic will provide a close-up look at late-season field conditions and problems.

The clinic will be held at the Agricultural Research and Development Center near Mead. Registration begins at 7:30 a.m. with the clinic starting at 8 a.m.

Program topics include: fertilizer application and placement; hybrid maize; solar radiation: timing and effects of radiation changes on yields and disease; soybean aphids; soybean rust; and ultimate weed ID.

Presenters include UNL extension educators, specialists and

industry representatives.

Early registration is recommended to reserve a seat and resource materials. Cost is \$130 for those registering by Aug. 17 and \$180 after.

Certified Crop Advisor credits are anticipated: 0.5 in soil and water management, 2.5 in crop management, 1 in nutrient management and 5 in crop protection.

For more information or to register, contact the ARDC at CMDC Programs, 1071 County Road G, Ithaca, NE 68033, call (800) 529-8030, fax (402) 624-8010, e-mail cdunbar2@unl.edu or visit the Web at ardc.unl.edu/training.htm.