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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 2002-19
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Scout for 2nd generation bean leaf beetles

The second generation bean leaf beetles are or will soon be appearing, so let's review beetle biology and management.

Two generations of bean leaf beetles develop in Nebraska. The second generation overwinters as adults and are the beetles seen early in the year feeding on seedling soybeans. These beetles feed, mate, lay eggs and die in early to mid June. There is usually a distinct period from mid June to early July when few if any beetles are present in the field.

Total developmental time from egg to adult can range from 25 to 40 days. Because of this range, it is common to see adults from the first generation and the second generation in the field at the same time. Beetles can be present at some level from mid July until the end of the growing season. Because of this overlap it is important to monitor beetles regularly to determine shifts in population, which will aid in management decisions.

2nd generation bean leaf beetle

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 second generation beetles feed on the developing pods. This yield loss can occur in several ways. Pods may be clipped from the plants, however 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.

There are no thresholds that consider pod-drop. Beetles normally

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Inside

Making hay with damaged corn

Drought damaged corn released by insurance companies for forage use can make good hay, but making it is tricky. Baling corn is not a normal farming practice, but it might be the best option this year for some drought stricken fields. If you've ever made cane hay or baled tall sorghum-sudangrass, you have some experience with this type of plant and know it can be challenging.

The stalk can cause most of the problems. Tall plants are difficult to mow. Disk mowers work quite well and many folks have had success using a windrower with a good, adjustable reel that pulls in the corn as it's cut. You can't drive very fast, though, if there is much volume. Laying corn down with a straight sickle bar works sometimes, but it takes a heavy-duty machine with sharp sickles to handle thick stalks.

Conditioning stalks is crucial to drying plants with any kind of speed. Unbroken stalks can lie in the windrow for weeks before being dry enough to bale, even with mid-summer heat. Raking tall plants also is difficult. They tend to get tangled, making an uneven, bunchy windrow, or wrap on the rake. Changing speed can help adjust for this problem, if necessary.

The dry corn bales somewhat normally, but stalks often cause the

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Updates

USDA's Nebraska Agricultural Statistics Service: For the week ending August 4, temperatures near or above 100°F and minimal rainfall resulted in continued deterioration of crops. Irrigation systems continued in full use where water allocations permitted, but in some cases were not able to keep up with crop demands. Grasshoppers continued to present problems across the state.

Corn condition rated 30% good and excellent, well below the average of 67%. Irrigated corn condition declined and rated 50% good and excellent, below the five year average of 76%. Dryland corn declined and rated 3 percent good and excellent, far below the average of 52%. Soybean condition declined again last week and rated 27% very poor, 28% poor, 30% fair, 14% good, and 1% excellent, well below last year and average.

Gary Zoubek, Extension Educator in York County: Producers continue to be busy with irrigation. Many of the dryland acres are now being evalutated for use as forages. Information about using corn and soybeans as forage has been shared with many producers. Many livestock producers are considering early weaning and what crops they could be planting now for future utilization.

York County corn tour to be Aug. 22

The York County Corn Growers plot tour will be Thursday, Aug. 22, at 6 p.m. at the Jerry Stahr Farm 3 1/2 miles east of the York County Fair Grounds.

In addition to viewing various plots, producers will have an opportunity to hear FSA representatives discuss the new farm bill. Roy Frederick, NU extension public policy analyst, also will be on hand to visit about some of the economics.

Terry Gompert, Extension Educator in Knox County: We received 1 to 5 inches of rain in the county. The most common rainfall was 2 to 3 inches. Just wonderful! The corn that was fertilized will fill, although there's no pollen for the new little ears. Irrigated corn may now fill and make 80% normal yield. This rain also may increase soybean yields by 10 bushels per acre, which would still be way below normal. Pastures and alfalfa are starting to green up.

Ralph Anderson, Extension Educator in Buffalo County: Pollination is complete in most fields, there is some variation on hillside pivots. Although, I have only limited reports, some producers have reported less than satisfactory pollination. The hot dry weather has stressed our fields. Consultant Mark Kottemyer, in his Agronomic Advisory, reports that most dryland fields or rows in irrigated fields that didn't get water are shot by now. He also reported that irrigated fields with low capacity wells or poor intake rates will experience significant yield reduction and high winds early in the season have reduced the acreage that received sufficent irrigation under some pivots. Even the good pivots are having trouble keeping up with the high water use rates we have experienced this summer.

We are seeing an increase in the number of European corn borer moths in our light trap. The light trap catch of western bean cutworms is declining, but we need to continue to scout for them. Corn rootworm beetles are laying eggs, so if we want to control them as adults, we need to start soon. As expected, spider mite populations have increased. In extreme cases, spider mites can knock 30 to 40 bushels per acre off yields. The last day of the County Fair was Tueday so 4-H fathers can concentrate again on their irrigation. Most of them are more pleased with fair results than they are with prospects for a profitable cropping year.

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Bean leaf beetles *(Continued from page 173)*

injure soybean pods by feeding on the outside layer of the pod, leaving a thin layer of tissue covering the seed. They do not usually eat into the developing seed, although this may occur on small pods. 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, 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 or will be emerging soon and beetle numbers will build to a peak in mid August through early September, depending on location. Beetle numbers will slowly decline as beans continue to mature and move to overwintering sites. Economic thresholds have been developed for two sampling methods: drop cloth (beetles per foot of row) or sweep net (beetles per sweep).

Sampling methods

Perhaps the most accurate way to sample beetles is with a drop (or shake) cloth. A drop cloth is a 3 x 3 foot piece of muslin or plastic attached on each side to dowel rods. Hold one rod against the base of the plants 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. Also, sample through the field in several areas to get a good estimate of the population. 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 you want to sample and lay part of the cloth on the ground. 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.

If the beetle counts are below the economic threshold, scout the field again about five days later. Stop scouting when the beetle counts begin to decline, the soybean pods begin to yellow (R7), or the field is sprayed. Thresholds are based on the number of beetles per row foot, which varies according to total management cost and the crop value per bushel.

The tables show economic thresholds for beans in 30-inch 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 $5 per bushel and your application costs at $7, you would need 6.4 or more beetles per foot of row to justify an application in 30-inch row beans,

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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. Economic thresholds in beetles per sweep for bean leaf beetles on stage R6 soybeans in 30-inch rows. Numbers in parenthesis are for beans drilled in 7-inch rows. (R6 is defined as a green seed filling the pod cavity in one of the four uppermost nodes with a fully developed leaf (seeds touching.) **Note:** Because the price of beans is so low, you may need to raise the thresholds by one beetle per sweep. For example if management costs are $10 an acre, it would take seven beetles per sweep in 30-inch rows or six per sweep for 7-inch rows.

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)

Bean leaf beetles

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Bean leaf beetle damage

or 1.5 or more beetles per foot of row in 7-inch row beans.

If you use a sweep net, 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 R5-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.

Several insecticides can be used to control bean leaf beetles. Be aware that most have pre-harvest intervals of 14 or more days. Information on insecticide selection and use can be found at the NU Department of Entomology Web site at *http://entomology.unl.edu*

Tom Hunt
Extension Entomology Specialist
Haskell Ag Lab, Northeast REC
Keith Jarvi
Integrated Pest Management Assistant, Northeast REC

Be alert to potential for nitrate and prussic acid in forages

Some areas of northeast Nebraska received good rains last weekend, providing a short reprieve from the drought. When celebrating what rains do develop, consider how the sudden moisture may affect your corn, millet and sorghum.

The roots will quickly take in the available moisture as well as lots of nitrates from the soil, causing a large spike in nitrate concentration soon after a rain. To limit potential problems, don't cut hay or silage until plants have a week to ten days to metabolize these extra nitrates.

Prussic acid poisoning also can be a problem, especially after a good rain. With increased moisture new shoots and tillers will start growing. Since these plant parts have the greatest potential for prussic acid poisoning, be prepared to watch the grazing more closely beginning about a week after the rain.

Similar problems can occur if grazing dried up alfalfa. New growth can increase the bloat hazard within a week or two.

Prussic acid, also called hydrocyanic acid and cyanide, often is overlooked when nitrate poisoning becomes a danger. Prussic acid is different from nitrates, but just as dangerous in plants under stress.

The danger of prussic acid poisoning is limited to just a few plants, most of them related to the sorghum family. Sudangrass produces the least amount of prussic acid and can be managed quite easily to prevent problems. Sorghum-sudan crosses are a bit more hazardous and forage sorghums, cane, grain sorghum, and shattercane can be very dangerous. Other summer grasses like millets and corn, as well as small grains do not produce toxic levels of prussic acid.

Prussic acid rarely is a problem in hay or silage. That's because as the plants dry or ferment much of the prussic acid disappears as a gas.

See page 180 for common misconceptions about avoiding these toxins.

When grazing these plants, please be extra cautious this year. New shoots and tillers and very young leaves contain the highest poisoning potential. This is bad news since your cattle are likely to prefer these plant parts when grazing. Limit their opportunity to select just these dangerous plant parts by waiting to graze until plants are tall enough to have enough older leaves to prevent animals from just picking their favorite parts. That means 18 inches for sudangrass and 24 inches for sorghum-sudan hybrids. During drought I don't even want to think about grazing cane or milo.

Be sure to fill animals with hay or grain before first turning into these pastures. And with a little care, your animals will be safe.

Bruce Anderson
Extension Forage Specialist

Corn hay

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bale's outer surface to remain uneven. Sometimes stalks stick out and extra twine wraps may be needed to hold bales together well. The uneven surface does not shed water as well, so store on well-drained sites.

After baling, be sure to remember to get a sample tested for nitrates. Grinding may be needed to blend high nitrate hay with other feeds for safety as well as to encourage animals to eat the entire bale.

Bruce Anderson
Extension Forage Specialist

Cowpea aphid found in alfalfa across Nebraska

Cowpea aphids are being found on alfalfa throughout Nebraska this year. The insect was first reported in Nebraska in Knox County in 1999. The following information has been largely taken from University of Texas, University of Arizona, and Oklahoma State University web sites. During the past two years, this insect, *Aphis craccivora* Koch, has been extremely abundant in alfalfa fields throughout arid parts of the Southwest, including Arizona, California, and Texas.

Commonly referred to as the "black aphid", it has been around for many years in the south, usually present in low numbers on cotton, alfalfa, and weeds. In addition, outbreaks of cowpea aphid have been reported sporadically throughout Kansas and Oklahoma, all within the past year. Infestation levels in these areas were reported to be from 50 to 125 aphids per stem and there was noticeable yellowing and stunting. In Nebraska the aphids were noticeable but were not quite at economic levels in most fields. Since many growers were in the process of harvesting the third cutting, we advised them to take the cutting and watch the regrowth.

Description

The cowpea aphid is easily distinguished from other aphids in alfalfa largely because it is the only black aphid found infesting the crop. In general, it is a relatively small aphid, less than 2 mm long. Non-winged and winged adults are usually shiny black while the smaller nymphs may appear to be a dull gray to black. The first half of the antennae is white, and the legs are usually a creamy white color with blackish tips. In alfalfa, these aphids obviously feed on young terminal growth, but can be found infesting leaves, blooms, and stems. Damage symptoms include yellowing, wilting, and dieback. In general, legumes can be seriously damaged, either by direct insect feeding or by the transmission of virus diseases.

Distribution

The cowpea aphid is generally distributed across North America and has been reported in at least 28 states and in three Canadian provinces. This aphid species also has an extensive host range with a marked preference for legumes. Other known host plants are apple, carrot, cotton, cowpea, dandelion, dock, goldenrod, kidney bean, lambsquarters, lettuce, lima bean, pinto bean, peanut, pepperweed, pigweed, red clover, shepherdspurse, vetch, wheat, white sweet clover, and yellow sweet clover. The aphid lives throughout the year without producing sexual forms and they are always parthenogenetic viviparous females (ready to produce offspring at birth).

Monitoring and Treatment

Because the cowpea aphid has only recently become a problem in alfalfa, no monitoring guidelines or economic thresholds have been developed for this aphid. An Oklahoma State University entomologist provided the following information. "Normally, we do not worry much about cowpea aphid, and if temperatures increase, predators will feast heavily on them; however, if damage (yellowing and stunting) is evident, then insecticide treatment may be appropriate." Based on his observations, cowpea aphids damage alfalfa and feed on the plant similar to the pea aphid; therefore, thresholds are likely similar.

OSU Cooperative Extension recommends that on alfalfa less than 10 inches tall, 50 aphids/stem should be used as a threshold. On alfalfa taller than 10 inches, 100 aphids/stem may be used.

The Texas website suggests a threshold near or below that of blue alfalfa aphid: Height less than 10 inches: 10-12 aphids per stem or 50 per sweep. Height greater than 10 inches: 40 - 50 aphids per stem or 200 per sweep. These thresholds have not been verified locally, but may be helpful in making treatment decisions.

Control

Very little information is available on insecticide efficacy against cowpea aphids. A glance at a University of Arizona insecticide trial showed that Warrior at 2.6 oz/acre provided the best overall control. We have established an insecticide trial at the UNL Haskell Ag Lab near Concord so more information will be available soon.

An interesting note -- we had a heavy infestation of cowpea aphids in an alfalfa field at the Haskell Ag Lab last week (over 500/sweep). Over the weekend we had over 3 inches of rain and on Monday the aphid populations had crashed. Rain and possibly an abundance of lady beetles, a major aphid predator, appear to have solved the problem for us. Time will tell if this aphid will become a more common pest of alfalfa in Nebraska.

The following websites offer more information on the cowpea aphid:

- Kansas State University: *http://www.oznet.ksu.edu/dp_entm/extension/newsltrs/26Apr99.pdf*
- Kansas State University: *http://www.oznet.ksu.edu/library/ENTML2/MF809.PDF*
- University of California: *http://danr.ucop.edu/news/Jan-June2000/cowpeaaphid.html*
- University of California at Davis: *http://www.ipm.ucdavis.edu/PMG/r1301511.html*

Keith Jarvi, Integrated Pest Management Assistant
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If you've got enough soil moisture

Timing's right for planting alfalfa

Alfalfa planted in August establishes well -- when moisture is available. Be sure to plant early enough so alfalfa has six to eight weeks between emergence and freeze back to develop good cold tolerance. If you're in northern Nebraska or southern South Dakota, you need to plant in the next week or so. However, planting now will only be beneficial if you have enough soil moisture for seeds to germinte.

We see much greater success establishing alfalfa stands in August when the top two to three feet of the soil profile is about 80% of field capacity or higher. Seeds must germinate soon after planting and have moisture continuously available to support pre-winter growth.

Any planting delay could cause poorer stands. In southern Nebraska you can wait until mid-August, which is ideal. Planting after August 31 becomes risky. In central Kansas alfalfa can be planted as late as mid-September.

Seedbed preparation is crucial for late summer plantings. Good seed-to-soil contact and weed control are critical, both when seeding into prepared seedbeds or into wheat stubble. Put extra effort into creating a firm seedbed which will enhance seed-to-soil contact, limit the rate of soil drying, and help deeper moisture "wick" up toward the surface.

Whenever seeding alfalfa in August, be wary of grasshoppers. They're especially big and bad this year, and they love to eat new seedlings. Spray field margins with insecticides before planting if necessary.

One important caution -- never plant into dry soil. August plantings into dry soil may lie dormant for several weeks. Too little time then will remain for seedlings to develop good cold tolerance. Many failures occurred in recent years because folks forgot that fall rains are unreliable in our area.

If you have moisture, plant. With help from Mother Nature, good hay is just a spring away.

Bruce Anderson
Estension Forage Specialist

Managing blister beetles in alfalfa

Blister beetles appear in Nebraska alfalfa fields every summer, but may be causing particular problems this year for horses fed alfalfa at this time of year.

Blister beetles produce a chemical that causes blisters on your skin if you crush a beetle, hence its name. This chemical – *cantharidin* – is comparable to cyanide and strychnine in toxicity. Horses are especially susceptible, but cattle and sheep also may be affected.

Small amounts of cantharidin can cause colic in horses. It is absorbed through the intestine and can cause symptoms such as inflammation, colic, straining, elevated temperature, depression, increased heart rate and respiration, dehydration, sweating, and diarrhea. There is frequent urination during the first 24 hours after ingestion, accompanied by inflammation of the urinary tract. This irritation may also result in secondary infection and bleeding. In addition, calcium levels in horses may be lowered drastically and heart muscle tissues destroyed. Since animals can die within 72 hours, it is imperative to contact a veterinarian as soon as blister beetle poisoning is suspected.

How many beetles does it take to kill a horse? It depends. Concentration of cantharidin varies with the species and sex of the beetle. The amount of cantharidin necessary to kill a horse is estimated at 1 milligram per kilogram of horse weight. This translates to about 25 of the more toxic striped blister beetles for a 275 pound horse to over 100 for a 1200 pound animal. Much smaller numbers will cause discomfort, colic, and other symptoms.

Cantharidin is very stable and remains toxic in dead beetles. Most animals are poisoned by ingesting dead beetles in cured hay.

The best way to manage blister beetles is to keep fields from being attractive to beetles. Blister beetles are attracted to flowers, so cut on a schedule that keeps alfalfa and weeds from producing flowers. Practice good weed management to keep other flowering plants to a minimum, including along field margins.

Check fields for blister beetles before harvest. Avoid crimping or crushing hay if beetles are present. Crushed beetles remain in the hay and can poison animals. Since blister beetles tend to swarm, crushing can deposit many dead beetles into a single flake of hay.

Do not use a hay conditioner when harvesting blister beetle infested alfalfa. Sickle bar mowers and some disk mowers lay the hay down but do not crush it. If beetles are not killed by driving on the hay they will crawl out of the hay and leave as it dries. Other tips include:

– Do not drive on hay shortly after cutting

– Avoid using outer edges of fields for horse hay, especially if adjacent to weedy strips

– Harvest before hay blooms

– Use a short residue insecticide around field margins; follow directions on harvest intervals

Bruce Anderson
Extension Forage Specialist

Field tours feature water-saving irrigation strategies

In yet another dry year in southwest Nebraska, producers are looking for better irrigation strategies to get the most from the water they have to use.

The Republican River Basin Irrigation Management Project focuses on showing farmers and crop consultants how time of application and amount of water applied affects yield. It provides for demonstrations of research-based irrigation management strategies in farmer fields.

Field tours showcasing corn irrigated with one of three strategies (fully watered, water miser best management practice, and deficit irrigation) will be August 13 near Holbrook and Aug. 15 near Culbertson. Both will begin at 7 p.m. Other water-saving methods to be covered include improving irrigation systems, reducing tillage, growing crops that use less water, etc. The new EQIP cost share program provides money for most of these methods and will also be discussed.

To reach the Aug. 13 tour, from the east edge of Holbrook on U.S. Highways 6 and 34, drive 0.5 mile north on the county road. The plot is on the west side of the road and Gene Glanzer is the farmer cooperator.

The second tour, Thursday, August 15, is 1.5 miles east of Culbertson on U.S. Highways 6 and 34 or 8 miles west of McCook. The plot is on the north side of the road. Ron Hoyt is the farmer cooperator.

The three types of irrigation management strategies being spotlighted include:

Fully watered

The traditional Best Management Practice irrigation management strategy focuses on keeping soil-water at a high enough level to prevent moisture stress from being a yield-limiting factor. The goal of the strategy is to maintain plant available soil-water (in the active root zone) between field capacity and 50% depletion from planting through maturity. Usually the soil is kept at 0.5-1 inch below field capacity to allow for storage of rain. After the hard dough stage the soil is allowed to dry to 60% depletion.

Southwest Nebraska Irrigation Field Tours Aug. 13, Aug. 15

Water miser

The Water Miser Best Management Practice focuses on saving water during the less sensitive vegetative growth stages and watering fully during the critical reproductive growth stages. Irrigation is delayed until about two weeks before tassel emergence for corn unless soil-water becomes 70% depleted (in the active root zone). Once the crop reaches the reproductive growth stage, the plant available soil-water (in the active root zone) is maintained in a range between field capacity and 40% depletion. Usually the soil is kept 0.5-1 inch below field capacity to allow for storage of rain. After the hard dough stage the soil is allowed to dry down to 60% depletion.

Deficit irrigation

The deficit irrigation management strategy focuses on correctly timing the application of a restricted quantity of water both within the growing season as well as over a several year period. The intent is to stabilize yields between years by applying irrigation based on soil-water depletions.

The strategy is to delay applying water until about two weeks before tassel emergence for corn unless soil-water becomes 70% depleted. Once the crop reaches the reproductive growth stage, the plant available soil-water (in the active root zone) is maintained between 30% and 60% depleted during the early reproductive stage and is allowed to dry down to 70% depleted after the hard dough stage.

For more information about the field tours or the Republican River Basin Irrigation Management Project, contact Steve Melvin at (308) 367-4424 or smelvin2@unl.edu.

Steve Melvin, Extension Educator, Frontier County

Aug. 19 field tour to spotlight research on nutrient recommendations

Improved nutrient management is necessary to control costs and to prevent environmental contamination. The challenge for producers is to achieve maximum profit. The University of Nebraska Soil Fertility group has initiated a statewide research program to revise their nutrient recommendations. Improved varieties, corn grown on a wider variety of soils and more powerful analytical procedures are factors that make producers question the current nutrient recommendations.

A field tour of one of the 12 sites is scheduled to begin at 1:30 p.m. Aug 19 south of Brunswick. The site is 3 miles south of Brunswick and1.5 miles east on 860 Road.

The research is designed to determine the need for nitrogen, phosphorus and potassium in the same study, rather than looking at the need for a single nutrient. Speakers will include Achim Dobberman, Extension soils specialist, and Charles Shapiro, Extension soils specialist at Northeast REC Haskell Ag Lab.

In addition, a second site will be visited near Page. This site will demonstrate variable rate nitrogen application based on multiple years of yield data and is conducted by the Central Farmers Coop. Jason Steffen will lead the discussion.

Agronomy offers distance ed classes for fall

The University of Nebraska Department of Agronomy and Horticulture will be offering several distance education courses this fall, some of which will be taught entirely on-line to make them more available across the state. For more information or updates on any of these classes, visit their web site at *http://agronomy.unl.edu/distance_ed/* Some will be available for college or CEU credits and some will be non-credit.

Classes scheduled for this fall include:

Genetics Module:

-- Crop and Weed Genetics -- entirely online

Plant Breeding Modules

Online with videostream; video tapes also are available:

-- Self-Pollinated Crop Breeding

-- Germplasm and Genes

-- Cross-Pollinated Crop Breeding

Four topics have been integrated into a single workshop, Crop Modeling for Environmentally Specific Management. It will be held Jan 6-10 and may not be offered again for some time. The individual topic areas include: Introduction to Crop Model Applications; Crop Modeling: Case Studies; Modeling Root-Zone Water Quality; Designing GIS Applications for Crop Management

Distance courses offered through the NU Institute of Agriculture and Natural Resources are listed on the Web at *http://ianrhome.unl.edu/distanceEd/*

Distance education courses offered throughout the entire university are listed at *http://unlsched.unl.edu/nusched/index.jsp*

Deana Namuth, Distance Education Lecturer, Department of Agronomy/ Horticulture

Use an integrated approach to reduce disease threat to wheat

Hot, dry weather creates two problems for wheat seed. First it reduces seed quality and second, dry fall planting conditions predispose seedlings to crown and root rot. To combat these potential threats, growers should use the following integrated approach:

1. Select varieties well adapted to their location.
2. Plant at the proper time.
3. Don't plant short-coleoptile wheats too deep.
4. Treat wheat seed with a fungicide that is active against root rot.
5. Plant into a firm, mellow seedbed (very important in a dry year).

The most frequent root rot problem in Nebraska is common root rot. Stressed seedlings become infected in the fall and, depending on the extent of infection, may winter kill or die in the spring following spring green up. The following are examples of seed treatment fungicides registered for wheat which have activity against crown and root rot: Dividend XL; Raxil XT or MD; Raxil MD Extra; Flo-pro; Nu-Zone and Baytan

These products are most effective when applied with a commercial-type seed treater. Good uniform coverage of the seed is important. Seed treatments will provide a two to three week window of protection following germination.

John Watkins
Extension Plant Pathologist

Setting the record straight on toxic poisoning in forages

Rumors abound about hazards caused by this summer's drought to forages. One rumor is that silage eliminates nitrate problems. Yes, silage fermentation neutralizes many nitrates, but it will not eliminate all of them. If forage that enters the silo is extremely high in nitrates, then the silage coming out could still have enough nitrates to be toxic. The only way to know is to test the actual silage before feeding it to livestock.

Another rumor is that nitrates will decline to safe levels if you just let the crop stand in the field until winter. Yes, nitrates usually decline as a plant matures if it has some new growth, like grain or leaves, that will use up the nitrates. But plants that are essentially dormant or have no more growth potential often retain high nitrate levels for many, many months. Again, test to know for sure.

Finally, rumor has it that if you wait about a week after a hard freeze, prussic acid will not be a problem any more. A hard freeze kills leaves and as they dry, much of their potential prussic acid disappears as a gas. But when tops are killed, sometimes new shoots or suckers begin growing at the plant base. These often have very high poisoning potential. Watch for new growth and potential problems.

Don't become so afraid of nitrates and prussic acid that you avoid your crops altogether, but make sure you know the true hazards, and then use them wisely and safely.

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