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Crop Watch No. 2004-23, October 8, 2004

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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

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No. 2004-23, October 8, 2004

Skip fall tillage and stalk shredding to conserve soil moisture, reduce erosion

Once the crops are harvested, producers should skip fall tillage this year to leave as much residue standing in the field as possible. Tillage dries the soil, buries residue, destroys soil structure, and increases erosion and runoff. With the drought in some areas of the state this year, the residue is more fragile than normal and not as much was produced. When tilled, dry soil flows easily through tillage equipment, breaking up and burying even more residue than in normal years.

Even where yields were good, the residue should be left standing and attached so that it doesn't "drift" into piles, creating problems with planting next year.

Also, producers who shred their stalks should consider skipping that step this fall. Shredding or tilling stalks now will cut them loose and allow them to blow away. Standing residue, still attached, is one of the most effective ways to protect soil from the erosive forces of wind and to capture snowfall. The standing residue will greatly decrease the amount of blowing soil early next spring when wind erosion is at its peak before the planting season.

Producers should consider no-till directly into the standing residue to continue the erosion control until crop canopy can take over. Any residue left standing is less residue that has to be cut or handled on subsequent field operations. The worst thing a producer can do is to cut the residue loose which allows it to move and create a mat of residue on the soil surface.

Tillage costs include far more than just labor, equipment and fuel -- not a minor consideration with rising diesel prices. Other costs may be less immediately visible, but still

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If you're interested in no-till, but still need more information about it, take advantage of an on-line survey to tell researchers what you need.

See story on page 215.

Inside

Market Journal: Watch for postharvest rebound in soybeans

If market history is any indicator of soybean prices, they likely hit a low this week and began a postharvest rebound, according to Roy Smith, a speaker on this week's *Market Journal.* This rebound can last from three to twelve weeks.

On this week's show Smith addresses the historical price swing and what factors, such as the LDP, loss of potential government price protection, and loan options, producers should consider when deciding whether to sell.

Other speakers will include Tom Dorn, Lancaster County Extension educator, on grain drying issues and Charles Shapiro, Extension soil nutrient specialist, on nitrogen management.

Market Journal, a UNL production, is broadcast on NETV at 6:30 a.m. CT Saturdays and on NETV2 at 9 a.m. CT Sundays.

Ag briefs and updates

Paul Hay, Extension Educator based in Gage County: Crop yields are quite good, especially on dryland. Wheat planting is underway with good emergence and establishment in no-till fields. Two incidents this summer remind us of the danger of planting wheat in the first two years after native grass or brome grass. If conditions are just right, Take All disease can tear the heart out of your yield. Soybean yields reported 10-20% lower following milo. We need help in finding the cause and cure.

Keith Glewen, Extension Educator based in Saunders County: Dryland soybean yields are much better than we had anticipated. Dryland corn yield and quality is exceptional and will cause some major problems with adequate storage. Irrigated corn and soybeans are very good to excellent. Some growers will question the dollars they invested on irrigating soybeans as there is little difference in yields in some locations. Not enough irrigated corn has been picked to compare yield to last year's outstanding crop.

Gary Lesoing, Extension Educator based in Nemaha County: Harvest is moving along in Nemaha County and the surrounding area. The past week most of the harvest has been focused on soybeans as they have matured. Yields have generally been excellent. In drier areas, on less productive soils, yields are in the 35-45 bushels per acre range, while in the better soils with timely rainfall, soybean yields of over 70 bushels per acre have been reported. In some of the farm plot test strips, soybean yields over 80 bushels per acre were recorded. Several acres of soybeans have been harvested the past two weeks. Earlier, some corn was harvested. Reported yields have ranged from 125 bushels per acre on some of the poorer, eroded soils to over 230 bushels per acre in a river bottom field. Much of the corn that was harvested, dried down to 15% or less. Storage at the local elevators and terminals is very tight with the excellent harvest we are having. The last cutting of alfalfa has been harvested and some corm stalks are being baled up. Wheat has been planted, but could use some rain to help it get off to a good start.

USDA Nebraska Agricultural Statistics Service: **Corn** condition rated 3% very poor, 5% poor, 20% fair, 47% good, and 25% excellent, above last year and average. Irrigated fields rated 78% good to excellent while dryland fields rated 61% good to excellent. Seventy-one percent of the fields were considered mature, behind last year at 82 and average at 90. Harvest was 13% complete, behind last year at 16% and average at 25%.

Soybean condition rated 4% very poor, 10% poor, 25% fair, 46% good, and 15% excellent, above last year and average. Harvest was 37% complete, ahead of last year at 26% and average at 30%.

Sorghum condition rated 4% very poor, 10% poor, 42% fair, 38% good, and 6% excellent, above last year and average. Fifty-eight percent of the acreage was mature, behind last year at 62% and average at 80%. Harvest was 9% complete, behind last year at 11% and average at 25%.

Dry bean condition rated 7% very poor, 18% poor, 30% fair, 39% good, and 6% excellent. Twenty-five percent were harvested, well behind last year at 78% and average at 79%.

Proso millet harvest progressed to 50% complete, behind last year at 85%.

Wheat seeding moved ahead to 85% planted, behind last year at 90% and average at 88%. Fifty-seven percent had emerged, behind last year at 65% and average at 59%. The rainfall of the past weeks should promote germination and establishment of stands.

Alfalfa conditions rated 13% very poor, 15% poor, 29% fair, 36% good, and 7 % excellent, above last year and average. Fourth cutting activities were 72% harvested, behind last year at 84%.

CROP WATCH

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Fall tillage *(Continued from page 213)*

have an impact on your operation.

Too often the soil will dry to the depth of tillage. An average silt loam soil can hold about 2 inches of soil moisture per foot of soil. Disking 6 inches deep or chiseling 12 inches deep and allowing the soil to dry to the depth of tillage could result in a soil moisture loss of 1 to 2 inches of water. If the producer irrigates, irrigation costs are increased because more water must be applied to replace the lost moisture. Shallower tillage, even with a rolling stalk chopper, can still result in moisture losses of about ½ inch per trip and cuts the residue loose, allowing it to move. In addition, tillage "plants" weed seeds, increasing competition for soil moisture.

Some say the soil needs to be tilled to "open it up to let water in". Unfortunately it dries to the depth of tillage and the initial water that is let into the soil is just replacing what was lost, not adding to the soil moisture reserve. When tillage is performed, the soil surface is broken up and pulverized, making the soil prone to crusting from raindrop impact. Thus the tillage thought to open the soil up actually creates a condition that seals the soil, resulting in more runoff. The differences in density between soil layers also impedes water movement into the soil. The long-term use of no-till allows soil structure to build, increasing infiltration and decreasing runoff even more.

Residue cover is lost when doing tillage. This cover protects the soil from raindrop impact, reducing erosion and crusting of the soil. Reduced crusting allows more rainfall to soak in. With more soaking in, less runs off. Also, the residue slows runoff giving it more time to soak into the soil. The residue acts as a mulch reducing evaporation from the soil surface, further conserving moisture. A moist soil with residue cover next season doesn't get as hot as a bare soil, allowing better root development, especially if the drought continues. Research in west central Nebraska indicates that this residue mulch can conserve as much as 3 to 5 inches of soil moisture in irrigated conditions, greatly reducing irrigation costs and stretching limited irrigation water.

Even without drought concerns, producers should still consider using no-till to improve timeliness and profitability. The diesel fuel requirements for the typical chisel-disk-field cultivate tillage system is about 4.08 gallons per acre including knifing in fertilizer, planting, and one row crop cultivation. By switching to a no-till system, the fuel use decreases to about 1.43 gallons per acre including knifing in fertilizer, planting, and two sprayings. There is a corresponding decrease in labor requirements and an improvement in timeliness without the tillage.

With the soil moisture losses from tillage and reduced soil structure, yields are lower and production costs are higher as tillage increases. No-till tends to be the most profitable tillage system, especially when there are soil moisture and erosion concerns.

Paul Jasa
Extension Engineer

Recommend the no-till research that will answer your questions

No-till production systems are being adopted by producers to reduce erosion, conserve moisture, improve soil structure, decrease fuel and labor requirements, improve timeliness of field operations, and increase profitability. Those who use continuous no-till wonder why everyone isn't doing it. Those who try no-till and quit before they learn the management changes needed for successful no-till wonder why anyone would do it. Those who use a tillage rotation, for instance only no-tilling corn into soybean residue, never get to the soil structure benefits that continuous no-till has to offer.

Many producers have questions and concerns about no-till and need a little information or help to make the successful transition to continuous no-till systems. To address those needs, a group of producers, researchers, educators, and agency and agribusiness representations have been meeting after the No-till on the Plains Winter Conference to discuss challenges with no-till productions systems and no-till education. A no-till survey being conducted by Kansas State Extension is one of the outcomes of those meetings. The survey, *No-till Research Needs for the Great Plains*, is designed for producers to indicate their needs, concerns, and challenges regarding no-till.

Results of the survey will be used to help direct future educational programs and new research activities related to no-till production systems. Although the questions are directed to the High Plains, anyone can participate in the survey, giving guidance to the group and identifying where they should spend their efforts. The survey takes only about 10 minutes to complete and is accessible through a link at the top of a K-State No-till Web page at:
www.oznet.ksu.edu/notill

The on-line survey will be available throughout October for your input. Thank you for your participation in the survey and in helping develop and deliver information on no-till.

Paul Jasa
Extension Engineer

Olympus™ herbicide released for downy brome control in wheat

Late summer rains have been a blessing to winter wheat growers in drought-stricken western Nebraska. This blessing, however, comes at a price: an increase in winter annual weeds like downy brome (often referred to as cheatgrass). Fortunately, wheat growers have a new tool to combat this weed. This summer Olympus™ herbicide received a federal label for use in spring, durum and winter wheat and will be available for use this fall.

Olympus herbicide has been tested in western Nebraska for several years and has provided downy brome control similar to Maverick® herbicide. Maverick has been available for use for several years. Both herbicides work best when applied early postemergence to actively growing downy brome plants in the early fall (generally by mid October in the Panhandle and late October in southwest Nebraska). Downy brome control with fall applications has generally ranged from 85% to nearly 100%.

Olympus herbicide should be applied at a rate of 0.9 ounces per acre for downy brome control. Olympus also will provide control of many winter annual broadleaf weeds. A non-ionic surfactant should be added at a rate of 0.25%-0.50% on a volume basis. Olympus herbicide may be applied in the spring, but downy brome control in the spring is more inconsistent than fall applications and may not provide the level of control desired.

Maverick herbicide should be applied at a rate of 2/3 ounce per acre in 5 to 20 gallons of water per acre. A non-ionic surfactant should be added to postemergence treatments at 0.5% on a volume basis. Like Olympus, spring applications to downy brome have been more inconsistent than fall applications. Spring applications occasionally have provided control as high as 85%, but more typically control in the spring has been in the 35% to 70% range. These plants are usually significantly stunted, but will produce seed. Both Olympus and Maverick will provide control of many winter annual broadleaf weeds.

Both products have rotational restrictions, which may be as long as 22 to 36 months. Growers should be aware of these restrictions before using either product. Although costs vary, Olympus is about $1.50 less per acre than Maverick.

Now winter wheat growers can choose between two useful products that selectively control downy brome in winter wheat. Just a few years ago, options were much more limited for growers with a bad infestation of downy brome. They could either plow under or spray out the crop and reseed or risk significant yield losses to weed competition. This year's options are much more palatable.

Drew Lyon, Extension Dryland Cropping Systems Specialist Panhandle REC

Selecting the right small grain for a spring forage

What small grain -- wheat, rye, or triticale -- would be the best choice to provide a spring forage for your operation? Understanding the characteristics of each can help guide your selection.

Rye provides the earliest possible pasture. It also may be the best match for double cropping. Some varieties provide quite a bit of fall growth, too, if planted early. Rye also may be the most reliable when planted under stressful conditions. It does have some drawbacks, however. It turns stemmy and matures much earlier than wheat or triticale, losing feed value and palatability earlier in spring. Plus, wheat grain producers won't want it contaminating fields next year.

Triticale holds on to its feed value well even into late spring. This makes it well suited for hay and silage, or for stretching grazing well into June if you don't mind starting two or three weeks later. A disadvantage is that it tends to be a bit more susceptible to winter injury.

Winter wheat has been the small grain of choice for winter and spring grazing in the southern plains where higher winter temperatures allow growth to continue, although slowly. Up here where wheat goes dormant, its carrying capacity is not as high as triticale or rye. It does provide good quality forage before stems develop and it's the clear choice if you want to use it for early pasture and for grain.

In a nutshell, each crop offers special benefits: rye provides early pasture, triticale provides hay, silage, and later grazing, and wheat offers grazing and grain. Other factors also may affect your choice, but in general, these guidelines will work well for initial comparisons.

Bruce Anderson Extension Forage Specialist

Results from 2004 rootworm insecticide trials

Various corn rootworm treatments were evaluated in an experiment conducted at the University of Nebraska Agricultural Research and Development Center near Mead this summer. Entomology Professor Lance Meinke conducted the trial assessing the efficacy of experimental and commercially available products for use against corn rootworm larvae in corn.

Treatments included the transgenic YieldGard Rootworm hybrid, Poncho 1250 seed treatment, and a variety of liquid and granular insecticides applied at planting.

The study was conducted at a site that was late-planted to corn in 2003 to encourage high rootworm populations. Single row plots 33.5 ft long were planted on April 28 and were replicated four times. Five plants per plot were dug on July 14 and root injury was rated using 1-6 and 0-3 injury scales. Additional experimental details are available at *http://entomology.unl.edu/fldcrops/trials.htm*

There was a high level of rootworm feeding at this site, and the untreated control plots experienced an average of over two nodes of roots pruned. The transgenic YieldGard Rootworm hybrid, and several planting time insecticides provided a high degree of protection from rootworm feeding injury in this trial.

A similar 2004 rootworm trial from Clay Center is also available at the web site mentioned above. Additional field crop efficacy trial reports will be posted there later this fall.

Bob Wright
Extension Entomologist

2004 Corn Rootworm Soil Insecticide Experiment 1. University of Nebraska Agricultural Research and Development Center, near Mead.

Insecticide	Rate/Place[a]	Root Damage Evaluation: Mean Pct[b] Lodged (± SE)	Mean Root Dam. Rat[c] (1-6 scale)	(0-3 scale)
YieldGard Rootworm + Poncho 250		0.00 ± 0.00	1.95 a	0.05 a
Aztec 2.1 + Poncho 125	00.07 TB	0.72 ± 0.72	2.30 ab	0.15 ab
Aztec 3.78G	0.137 TB	1.22 ± 1.22	2.45 abc	0.17 abc
Counter 15G	1.2 TB	0.66 ± 0.66	2.50 abcd	0.12 ab
Regent 4 SC	see footnote d	0.00 ± 0.00	2.55 abcd	0.18 abc
Fortress 2.5G	0.20 I	2.33 ± 1.61	2.55 abcd	0.23 abc
Aztec 2.1G	0.141 TB	2.53 ± 1.81	2.60 bcde	0.29 abc
Force 3G	0.12 TB	1.97 ± 1.26	2.75 bcdef	0.24 abc
Aztec 4.67G	0.14 TB smartbox	5.37 ± 3.13	2.95 cdef	0.36 abc
Lorsban 4E	see footnote e	1.80 ± 1.12	3.10 defg	0.51 abcd
Force 3G	0.12 TB smartbox	7.64 ± 4.07	3.10 defg	0.52 abcd
Lorsban 15G	1.2 TB	3.75 ± 3.75	3.10 defg	0.52 abcd
Poncho 1250	1.25 mg ai/seed	0.70 ± 0.70	3.20 efgh	0.57 bcd
Capture 2EC	see footnote f	2.58 ± 1.86	3.25 fghi	0.67 cd
Cruiser 5 FS	1.25 mg ai/seed	14.75 ± 5.98	3.70 ghi	1.01 de
Capture 2EC	see footnote g	12.63 ± 10.33	3.75 hij	1.18 e
Thimet 20G	1.2 TB	38.73 ± 20.80	3.85 ij	1.24 e
Fipronil ST	50g ai/100kg sd	40.22 ± 16.97	4.35 j	1.75 f
Untreated (1)		57.84 ± 17.37	5.00 k	2.34 g
Untreated (2)		70.17 ± 11.36	5.10 k	2.32 g

[a] Rate presented as oz ai per 1000 row ft except where other units listed:
TB = T-band, 7-inch band placed over the open seed furrow;
I = placed in the open seed furrow;
ST = seed treatment.

[b] On August 30 2004, there were no significant differences ($P > 0.05$) in final stand count means; the final overall mean number of plants per 33.5 ft ± SEM = 39.99 ± 0.38. The mean percentage of final stands that were lodged is presented by treatment (lodged = plant leaning > 45° angle from vertical).

[c] Root rating scales used: 1-6 scale (Hills and Peters 1971); 0-3 scale (J. Oleson, Iowa State University); within columns, mean root rating values followed by the same letter are not significantly different from each other (Fisher's protected LSD test @ 0.05 significance level).

[d] Regent 4SC rate: 0.13 lb ai/A; volume: 5 gallons water/A through microtube into open seed furrow

[e] Lorsban 4E rate: 1.2 oz ai/1000 ft; volume: 5 gallons water/A, TB application

[f] Capture 2EC rate: 0.09 oz ai/1000 ft; volume: 5 gallons water/A, TB application

[g] Capture 2EC: rate: 0.09 oz ai/1000 ft, volume: 5 gallons 10/34/0 starter fertilizer/A, microtube infurrowapplication

Research explores safe levels, times for applying manure to growing crops

Applying manure to crops through center pivots could save time and labor and fertilize crops when they need it. Manure, though, has salt that can damage plants.

To find out when and how much swine manure can be safely applied to corn and soybeans, University of Nebraska scientists conducted experiments at the Haskell Agricultural Laboratory near Concord.

While the effects of salt accumulations in soil are well studied, this research focused on salt's effects on growing crops, said Soil Scientist Charles Shapiro.

He teamed with IANR Irrigation Engineer Bill Kranz and Agronomist Charles Wortmann on this research.

"Lots of producers already apply manure to fields through a center pivot," Kranz said. Growing season applications would save time and money.

"Farmers want to know when and how much manure they can put on their crops before the salt in manure would be toxic to the plants," Shapiro said.

Researchers applied manure through a custom spray system that simulated pivots but allowed different application schemes on small test plots.

They checked manure's salt content using simple electrical conductivity, or EC, meters. Higher readings mean more salt.

Liquid manure from a pit was applied to corn and soybeans in early or late July at three concentrations. Some plots received undiluted manure with an EC of 20, some got a 50-50 water-manure mix with an EC of 12 and others received a mix of 75% water and 25% manure with an EC of 6.

These concentrations are higher than farmers typically apply but scientists wanted to identify the upper safe application limits for growing crops."In the earlier soybean applications, we severely damaged the plants at the high (concentration) rate," Shapiro said. "In the later stages, we stunted and defoliated the plants, but there was regrowth and survival, and there were much better yields" than with early or heavier applications.

Early full-strength application killed three-fourths of soybeans and some corn. Later application was less damaging to corn.

The EC 12 application in early July stunted soybeans, yellowed leaves and reduced leaf area. In corn, effects were less severe.

Corn yields improved 4% and 13% for early and later EC 6 applications, respectively. Soybean yields decreased 10% and 1% for early and later EC 6 applications, respectively.

Researchers concluded that manure with EC values of 6 or less should be safe for corn and soybeans at all growth stages. EC values of 12 should be safe for soybeans and corn by late July.

Applying manure through a pivot has several advantages over hauling it to the field in fall or spring, Shapiro said.

"It's better for the crop to use the nutrients in manure right away.

It also greatly reduces chances they'll leach into the groundwater."

Pivot manure application also is less expensive and more uniform, Kranz said.

"If you use a wagon, which would be in the 2,500- to 3,000-gallon capacity range, you're looking at 566 loads compared to one round with the center pivot at a half-inch application," he said.

The Nebraska Pork Producers help fund this IANR Agricultural Research Division research.

Sandi S. Alswager
IANR News Service

Old crop stocks down from last year

Old crop corn stocks in all positions on September 1, 2004 totaled 114 million bushels, down 26% from September 1, 2003, and the lowest total since 1996, according to USDA's Nebraska Agricultural Statistics Service. Of the total, 49 million bushels are stored on farms, down 9% from a year ago. Off-farm stocks at 65 million bushels are down 35% from 2003.

Old crop soybeans stored in all positions on September 1, 2004 totaled 6.4 million bushels, down 46% from last year and the lowest total since 1977. On-farm stocks are 1.7 million bushels, down 63% from a year ago. Off-farm stocks are 4.7 million bushels, down 36% from 2003.

Wheat stored in all positions on September 1, 2004 totaled 66 million bushels, down 24% from a year ago and the lowest total since 1996. On-farm stocks of 13 million bushels are down 24% from 2003. Off-farm stocks are 53 million bushels, down 24% from last year.

Old crop sorghum stored in all positions on September 1, 2004 totaled 5.5 million bushels, down 7% from last year and the lowest since 1996. On-farm stocks are 600 thousand bushels, up 50% from a year ago. Off-farm stocks are 4.9 million bushels, 11% under 2003.

Nebraska cattle on feed up 8%

Nebraska feedlots with capacities of 1,000 or more head contained 1.8 million cattle on feed on September 1, up 8% from last year but 3% below September 1, 2002. Placements of cattle into feedlots during August totaled 420,000 head, down 11% from 2003 and 6% below 2002. Marketings of fed cattle during August totaled 360,000 head, down 3% from last year and 5% below August two years ago.

UNL study reveals potential for noncompliance in soil conservation policy

Government policies designed to encourage soil conservation also contain components that may lead to noncompliance in some cases, a University of Nebraska-Lincoln agricultural economist said.

While the vast majority of producers comply with soil conservation program requirements, the costs associated with the program have led some producers to collect payments without complying with program provisions, according to a study by Konstantinos Giannakas, agricultural economist in the Institute for Agriculture and Natural Resources.

The U.S. Department of Agriculture requested the study, which Giannakas conducted with Jonathan Kaplan of California State University.

"The USDA wanted to know why farmers don't always comply, so we looked for loopholes and other problems in the design of their policies," Giannakas said. "The problem with the current policy design is that the penalty for noncompliance equals the government payment. This is shown to create economic incentives for producers who do not adopt conservation practices to claim government payments they are not entitled to."

The 1985 Farm Security Act linked eligibility for commodity program payments to conservation activities on highly erodible lands.

Since the inception of the policy, more than 11,000 producers nationwide have been cited for noncompliance violations. Data from 1997 revealed that out of 50,000 producers audited, more than 2,000, or about 4%, were found not to be actively applying conservation measures.

Giannakas said his research showed the extent of producer noncompliance and the level of adoption of conservation practices depend on the size of the government payment to the producer, the costs associated with the adoption of conservation practices, and the level of government oversight and enforcement.

"The share of producers in noncompliance is shown to increase with the costs of adopting conservation practices," he said. "Noncompliance falls with an increase in either audit frequency or size of farm program payment, or a combination of the two."

Giannakas said noncompliance can be completely deterred if the expected penalty exceeds the costs associated with program adoption.

"In addition to identifying the economic determinants of noncompliance, the results of this research provide insights on the likely effect of the latest Farm Bill on conservation compliance," he said. "The positive relationship between producer compliance and the size of the farm program payments suggests that the increase in government support can be expected to reduce noncompliance and increase the adoption of conservation practices."

A USDA grant helped fund this research, conducted in cooperation with IANR's Agricultural Research Division.

David Ochsner
IANR News Writer

Controlling winter annuals in dormant alfalfa

As harvest of other crops winds down, make time to take a last, close look at your alfalfa before the ground freezes solid. There still may be work to do.

Do you regularly have an abundance of yellow or white flowered weeds like mustard or pennycress in the first cutting of alfalfa? Do you have downy brome or cheatgrass problems? These weeds are tiny right now, so you might need to look closely to see them, but they're likely in your field and early next spring will grow rapidly, reducing alfalfa yield, thinning stands, and lowering forage quality.

Fortunately, help is readily available from several herbicides. To control winter annual weeds in stands over one year old, use one of these herbicides -- Karmex, Sinbar, Sencor, and Velpar. Cold temperatures soon will turn your alfalfa practically dormant but soils won't freeze solid right away. This is perfect timing for a herbicide application.

All these herbicides will control broadleaves like pennycress and mustard in established fields. Except for Karmex, they also do a pretty good job of controlling downy brome. While Karmex is not good for downy brome, it still may be the best choice for broadleaf control on low organic matter soils. If you seeded alfalfa this year, use other herbicides. For grasses like volunteer wheat, use Poast or Select. Raptor and Pursuit generally are best for broadleaves and they also control some grasses. Buctril and Butyrac also work on broadleaves, as long as temperatures remain well above freezing for a couple days.

Take advantage of some opportunities now to control weeds in your alfalfa and you can limit further problems next spring.

Bruce Anderson
Extension Forage Specialist

First frost drops in; crop damage limited

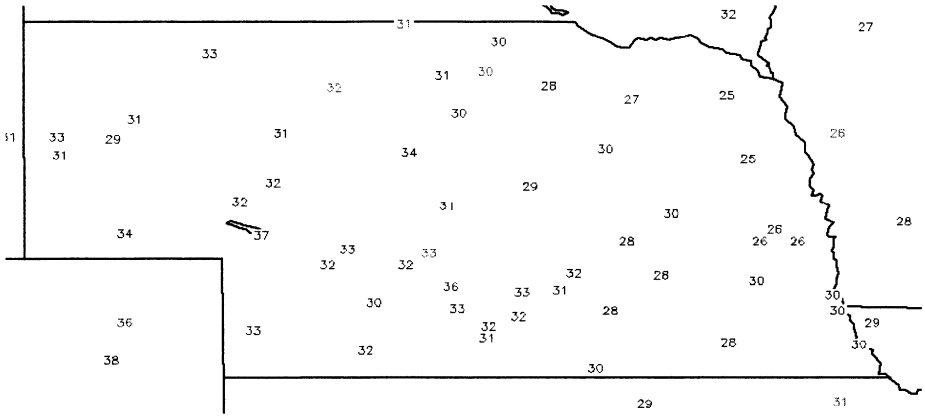
Freezing temperatures invaded the north central United States Oct. 1-2. In Nebraska, the coldest temperatures were during the early morning hours of Oct. 2. A hard freeze (28°F or lower) was observed north of a line from Ainsworth to Omaha, and in a small pocket encompassing Ord to Grand Island to Hastings southeast to Beatrice.

Temperatures fell to or dipped below the freezing mark of 32° across the remainder of the state, except for the southern third of the Panhandle, isolated pockets of the central Platte river valley, and the extreme southwestern corner of the state. At this time it appears that crop damage was limited due to the advanced maturity of most crops. Some late planted or replanted fields, however, sustained losses.

The freezing temperatures arrived about seven days earlier than normal across the northern half of the state, but the 28°F or below temperature readings occurred 10-20 days ahead of normal. Damage could have been more extensive, but a near record warm September helped crops make up for most of the exceptionally cool July-August growing period. Officially, only six years since 1894 have been warmer.

Benign weather conditions are anticipated through the week of Oct. 13 before another series of low pressure systems begins to affect Nebraska. Weather models are projecting an aggressive precipitation pattern across the central Plains during the Oct. 13-22 period, with the possibility of at least one major snow event in the central Rockies. Snow may even make it into western Kansas, Nebraska, and South Dakota.

This pattern continues the wet trend that began in late August and pushed the September statewide precipitation ranking up to being the 13th wettest in the last 110 years. The overall pattern resulting in increased moisture across most of the state is a large upper air ridge across the southeastern United States and a deep upper air trough across the western section. A continuation of this pattern through October and into November would insure above normal fall soil moisture recharge, along with the possibility of several major snow events.



Low temperatures in Nebraska for October 2, as provided by the High Plains Regional Climate Center. Hard freezes (28°F or below) occurred across northeast, portions of east central, and an area of south central Nebraska. The rest of the state was either frost free or experienced a mild event.

If the upper few feet of soil profiles can remain close to field capacity during the next six weeks, western areas of the state stand a decent chance of experiencing normal to above normal streamflow rates during the spring runoff season. Soils should freeze solid this year given normal winter temperatures and most of snow melt would be expected to be runoff rather than go toward soil recharge.

Al Dutcher
Extension State Climatologist

Ag at the Crossroads Nov. 4

Nebraska's Future Economy -- Interaction and Interrelation with Agriculture will be the theme of this year's Agriculture at the Crossroads. The conference will be held Nov. 4 at the Best Western Villager Convention Center in Lincoln.

Topics and speakers will include: Overview of Nebraska's Economy and Influences on It, by Richard Baier of the Nebraska Department of Economic Development; Nebraska Community Opportunities with Craig Schroeder of the Center for Rural Entrepreneurship; Flatwater Metroplex Sudy with Cecil Steward of the Joslyn Castle Institute; Economic Development and Strategies with a public initiatives panel including Glenn Friendt of the UNL Entrepreneur Center; Greg Iback, international trade, of the Nebraska Department of Agriculture, John Owens, NU vice president and Harlan Vice Chancellor, Institute of Agriculture and Natural Resources, and Sandy Scofield, director of the UNL Nebraska Rural Initiative.

The conference is sponsored by the Nebraska AgRelations Council. Registration is $30. For more information or to make a reservation, contact the Nebraska AgRelations Council, 104 ACB, P.O. Box 830918, University of Nebraska, Lincoln, NE 68583- 0918 or call (402) 472-2821. The registration deadline is Oct. 29.

Reader Q & A's

Selecting the right aeration fan for your bin

Q I want to build a 27-foot diameter drying bin that is 21 feet to the eave. I am planning to install a full mesh drying floor (leaving 20 feet of bin space for corn storage) and would like to design for 1.25 cfm/bu airflow when the bin is full. Should I buy an axial flow or centrifugal aeration fan?

A See *Table 1* for the estimated static pressure to push a range of airflows through various depths of shelled corn. We recommend axial flow fans for installations requiring static pressures of less than 3.0 inches of water, either axial flow or centrifugal fans for static pressures of 3.0- 4.0 inches, and centrifugal fans for installations requiring static pressures of greater than 4.0 inches of water, and *Table 1* shows that the static pressure needed to push 1.25 cfm/bu through 20 feet of corn is 5.6 inches of water. A centrifugal fan will work as well as an axial flow fan from a 16-foot to 18-foot grain depth and is recommended for depths greater than 18 feet. To achieve the recommended airflow with the lowest possible input horsepower at full depth, a centrifugal fan is required in this installation.

Tom Dorn, Extension Educator
Based in Lancaster County

Table 1. Static pressures for airflow resistance data for shelled corn at various air flows and grain depths.

Grain Depth (ft)	Airflow (cfm/bu) 0.5	0.75	1.0	1.25	1.5	2.0
	Expected Static Pressure (inch of water)					
8	0.2	0.3	0.5	0.6	0.8	1.2
10	0.3	0.5	0.8	1.1	1.4	2.0
12	0.5	0.8	1.2	1.6	2.1	3.2
14	0.7	1.2	1.7	2.3	3.0	4.6
16	0.9	1.6	2.4	3.2	4.2	6.4
18	1.2	2.1	3.1	4.3	5.6	8.7
20	1.6	2.7	4.0	5.6	7.3	11.3

Estimating corn drydown time

Q How long would it take to dry 20% moisture corn to 15% using natural air during the last three weeks in October?

A Using High Plains Climate Center climatic data for Lincoln, Nebraska, the 24-hour mean temperature is 51°F for the final three weeks in October. If we assume the mean humidity is 50% (dew point of 33°F) and if we assume the airflow is 1.0 cfm/bu, (the minimum recommended airflow for 20% moisture corn), we can estimate the time to dry this grain.

Under these conditions, it would take 17.2 days to bring the average moisture content of this bin of corn to 15%. The bottom of the bin will approach 12% moisture content under these air property conditions so the time for the top of the bin to reach 15% will take a little longer. Figure on about 20 days to dry the top of the bin to 15%.

In the real world, we never experience average weather conditions, so monitor the moisture content of the grain to judge when you have pushed the drying front completely through the grain.

Tom Dorn, Extension Educator
Based in Lancaster County

State hog inventory down

Nebraska inventory of all hogs and pigs on September 1, 2004, was 2.85 million head, according to the USDA's Nebraska Agricultural Statistics Service. This was 7% below September 1, 2003 but unchanged from June 1, 2004. Breeding inventory, at 360,000 head, was down 4% from September 1, 2003 but unchanged from last quarter. Market hog inventory, at 2.49 million head, was 7% below last year but unchanged from last quarter.

Nebraska hog producers intend to have 170,000 sows farrow during the September-November 2004 quarter, down 6% from the actual farrowings during the same period in 2003 and 2002. Intended farrowings for December 2004 - February 2005, at 170,000 sows, are 3% below the same period in 2003 and 6% below 2003.

U.S. hog inventory up

U.S. inventory of all hogs and pigs on September 1, 2004, was 61.4 million head. This was 1% above September 1, 2003 and June 1,2004. Breeding inventory, at 5.98 million head, was up 1% from September 1, 2003, and also up 1% from last quarter. Market hog inventory, at 55.4 million head, was 1% above last year and 2% above last quarter.

In northeast Nebraska watershed

FarmLink leads to water quality improvements

In 1999, about 20 concerned northeast Nebraska residents formed the Shell Creek Watershed Improvement Group to find and promote ways to reduce watershed flooding and improve water quality.

University of Nebraska Cooperative Extension introduced the group to its FarmLink program, which provided direction toward achieving those goals.

The FarmLink concept was organized and implemented in late 2002 through a USDA-funded project to promote agricultural conservation practices in a portion of the 300,000-acre Shell Creek Watershed. The watershed encompasses parts of Boone, Colfax, Madison and Platte counties. With the FarmLink program, watershed improvement group members and other local individuals who have already implemented conservation practices, visit with and encourage their peers to do the same, said Dave Shelton, university agricultural engineer and project leader.

Key to the on-site discussions is awareness of soil loss caused by tillage practices and water movement that leads to flooding and reduced water quality.

"People like the personal touch of someone coming out to talk directly to them," Shelton said. Mentors explain the different types of buffers and other conservation practices, and point out specific areas where they could best be implemented, compensation programs available for taking land out of production, and management changes needed to help ensure buffer success.

One type of buffer is a strip of grasses and/or trees planted between farm fields and streams or other surface bodies of water. These buffers slow and trap field runoff containing sediment, nitrogen, phosphorus and other elements that can enter the surface water. Another buffer type is a channel or waterway within a field that is shaped and planted to grass to form an area where water can flow down the slope in a controlled manner.

Rod Wilke, FarmLink coordinator, said plants suitable for streamside buffer strips include stiff-stemmed switchgrass, Indian grass and big bluestem. Other options are trees and woody shrubs that have retail value as nuts, fruits and decorative florals.

Wildlife organizations such as Pheasants Forever support the planting of buffer strips because of their habitat for birds and other animals, Wilke added.

Ralph Pieke of Newman Grove is a watershed resident and a FarmLink mentor.

"The concept is good and it's working," Pieke said. "I have great faith in it. You don't see the erosion and you don't have the runoff."

Of the 42 individuals Pieke and other mentors have contacted, 11 have signed contracts for more than 60 acres of buffers in the Shell Creek Watershed, Wilke said. These include just over 20 acres of grassed waterways that filter and control the runoff from about 215 acres of cropland, and 41 acres of streamside buffers that help trap and filter the runoff from nearly 2,000 acres, and physically protect approximately 2.5 miles of stream bank.

Additional federal funding has been received to use the FarmLink farmer-to-farmer concept in two new projects. One extends the Shell Creek Watershed target area into other parts of Boone and Madison counties. The other area is the Duck Creek Watershed in Saunders County. Duck Creek is a tributary of Sand Creek, which will be the primary water source for the soon-to-be-built Lake Wanahoo, a flood control and recreation area north of Wahoo. Shelton said extension will work with the Prairieland Resource Conservation and Development Council, the Lower Platte North Natural Resources District, the Nebraska Department of Environmental Quality and the Environmental Protection Agency in providing information and education programs to landowners and others.

"Our primary goal in these projects is to improve water quality in both Shell and Duck creeks," Shelton said.

"One way we hope to achieve this goal is through the FarmLink program by promoting conservation practices one-to-one," Wilke added.

A videotape is available for more information about installing and maintaining vegetative buffer strips. To obtain a copy, call (800) 755-7765 and ask for "Streamside Conservation - Installing and Maintaining Your Riparian Buffer."

Events

October

- Land Application of Manure Workshop, October 27, West Point

November

- Central Region Woodland Stewardship Conference, Nov. 6, Nebraska City

December

- Nebraska Soybean Day and Machinery Expo, Dec. 10, Saunders County Fairgrounds, Wahoo