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## CropWatch No. 94-7, May 6, 1994

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# CROP WATCH

University of Nebraska Cooperative Extension  
Institute of Agriculture and Natural Resources

No. 94-7  
May 6, 1994

## Crisis exemption issued for Pounce

A crisis exemption has been issued for using Pounce 3.2EC to control the pale western cutworm in winter wheat, based on reports of severe damage in Cheyenne County.

Pounce can be used at a rate of 4 ounces per acre (0.1 pound active ingredient). Refer to the label for restrictions and environmental precautions. This crisis exemption is only effective for 15 days, through May 16. It is important that wheat growers evaluate fields immediately for these cutworms.

Sampling of pale western cutworm adults last fall indicated that Cheyenne, Deuel and Kimball counties had the greatest potential for damage. Wheat fields in these counties and surrounding counties should be checked for pale western cutworms and their damage. The most detectable sign of the cutworms is the presence of tillers that have been cut off just below the soil surface. These tillers may be lying on the ground between the rows or remain standing with the other tillers but curled and dried up. The cutworms that have been found are only about half grown (about 3/4 inch), so the damage will be increasing over the next two weeks as the cutworms grow. The threshold for insecticide treatment is one to two pale western cutworms per foot of row. Cutworms can be difficult to find so when inspecting

*(Continued on page 46)*

## Corn should recover

Much of Nebraska's 1994 corn crop had been planted before the recent cold weather and snow, causing concern for the health and survival of the crop. Memories of the delays experienced in 1993 along with a warm dry March and early April motivated many producers to plant their corn crop and some soybean acres as much as three to four weeks earlier than normal. One producer justified his early planting by explaining he should complete his replanting before any of his neighbors.

Corn requires about 200 growing degree days to germinate and establish a stand. Most corn planted since about April 15 simply has not received sufficient GDDs to emerge. Seedlings that had emerged may have been subjected to several hours of temperatures in the teens or low twenties. Emerged leaves may have been frozen and appear brown or black. Since the growing point is still beneath the soil surface, new leaves will emerge as soon as the temperature increases and grain yields should not be affected. In some cases, emerged leaves were not frozen but simply remain pale tan or white in color. These plants have not experienced enough heat and sunlight to begin photosynthesis and chlorophyll production. When the sun comes out and soil temperatures rise, these plants should quickly recover.

Corn seedlings germinate very slowly, if at all, in soil below 50°F. In soil at 50-55°F emergence may take 18-21 days; in soil above 60°F,

emergence may occur in 8-10 days. The University recommendations for corn planting date consider the calendar and the soil temperature. In general, long term data indicate that soil temperatures after the last week of April will continue to increase and once above 50°F they will likely remain above 50°F.

Our recommendation is to begin planting corn when the average soil temperature exceeds 50°F and it is after April 15 for the far southeastern corner of Nebraska, after April 25 for eastern and central Nebraska, and after May 1 for northern Nebraska and the higher elevations in the Panhandle. This recommendation must be balanced against several other factors. Studies show reduced yields can occur when planting is delayed beyond May 5 in southeast Nebraska, after May 10 in east and south central Nebraska, and after May 15 in the northeast and Panhandle. Also, rain frequently

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## Check grain bins for insect activity

As air and grain temperatures increase, insect activity in grain storage facilities also will increase. Sample grain from several depths and locations inside each grain storage building or bin. Record the temperature and moisture of each sample and whether there are insects or spoilage odors.

If insects are found, they should be identified and control measures implemented. Indian meal moths are usually a problem only in the top few inches of the grain mass. They can be controlled by removing the webbed top few inches of grain and top dressing with a biological insecticide containing *Bacillus thuringiensis*. Most other insects such as flour beetles, grain weevils, etc. can only be controlled by fumigating the grain because they can be anywhere in the grain mass. Fumigation is extremely dangerous and is best conducted by a professional grain fumigant applicator.

Sample stored grain weekly throughout the year. If temperature and moisture are not at the proper levels, dry or aerate the grain to avoid spoilage and/or pest infestation.

**Steve Danielson**  
Extension Entomologist

## Pounce

(Continued from page 1)

fields look for both the damage and the cutworms. It is also important to correctly identify the cutworms as the other cutworm likely to be found in wheat fields at this time is the much less damaging army cutworm.

**Gary Hein, Extension Entomologist, Panhandle R&E Center, Scottsbluff**

## EPA approves Tilt for corn

The EPA has granted a supplemental label to Ciba Plant Protection for the use of Tilt (propiconazole) on seed corn as well as field, sweet, and popcorn. The fungicide is now registered for the control of northern and southern leaf blights, gray leaf spot, rust, and eye spot on corn, as follows:

Northern and southern leaf blights: Apply 2 to 4 fluid ounces per acre when disease first appears and continue on a 7- to 14-day schedule.

Gray leaf spot and eye spot: Apply 4 fluid ounces per acre when disease first appears. If conditions favorable for disease persist, continue to spray on a 14-day schedule.

Rust: Apply 4 fluid ounces per acre when rust pustules first appear and continue on a 7- to 14-day schedule.

Several restrictions and limitations are also noted on the label:

(1) Do not apply Tilt to seed or field corn after silking;

(2) Do not apply more than 16 fluid ounces of Tilt per acre per season;

(3) Do not apply Tilt to sweet corn within 14 days of harvest;

(4) Do not harvest field corn, seed corn or popcorn for forage within 30 days of application; and

(5) Do not harvest sweet corn for forage within 14 days of application

**David S. Wysong**  
Extension Plant Pathologist



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Lisa Brown Jasa, Editor

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## Corn recovery *(continued from page 45)*

interrupts field work during late April and early May in most of Nebraska. The probability of five consecutive dry days during this period ranges from 36-44%. It may be desirable for diverse farm operation to have corn planting finished by a certain date to meet labor demands of other crop and livestock enterprises.

### Seeds smaller, poor quality

Additional concerns for the 1994 corn crop include the general poor quality and small size of seed produced in 1993. Seed companies have been quick to correctly point out that a small seed contains the same genetics and yield potential of a larger seed, and most modern planters can adequately handle seeds of a different size and shape. However, the endosperm portion of a corn seed is the food source for the embryo. Less endosperm may reduce the amount of food energy available to the developing embryo. Under average conditions, the embryo can survive on stored food in the endosperm for about 21 days, which is more than adequate for establishment of the plant root and shoot. In cool conditions, metabolic processes occur much more slowly. If the soil is too wet and the environment around the seed lacks oxygen, the conversion and translocation of stored food energy to embryo growth development is much less efficient than under aerobic conditions.

Wet cold weather may favor development and activity of several soil pathogens that may further damage crop seedlings that are slow to develop. Wireworms and cutworms may have a greater chance of encountering corn seedlings and reducing stands because the seed may remain in cold soil longer. This may be particularly severe this spring in ecofallow systems or in weedy

areas where wet weather reduced herbicide effectiveness in 1993.

Producers concerned about delayed germination and emergence of corn can do little more than closely monitor the weather and evaluate crop development. Evaluate seedling health by digging up samples to determine if the plant is alive and healthy. Primary roots and the coleoptile (shoot) emerging from the seed should appear white and firm. Producers should carefully scout fields as seedlings emerge.

Many modern corn hybrids are capable of producing high yields over a wide range of population densities. If stand reduction does occur and it is uniform rather than spotty in the field, try to evaluate whether yield reduction due to delayed planting will exceed that due to reduced stands, and be sure to calculate the costs of replanting.

Most corn fields should adequately recover from this cold and wet period, particularly if warm dry weather returns.

## Scout fields for seed, seedling pests

Fields that have been planted for several days or weeks should be scouted for insects and damage that might lead to reduced stands. The recent cool, wet weather may have led to delayed emergence and increased vulnerability to insect pests that damage seeds and seedlings, such as wireworms, seed corn maggots, seed corn beetles, white grubs, and cutworms.

The best way to scout for these problems is to dig in the seed furrow in several locations across a field to determine the status of the seed and emerging seedling. Damage or insects should be noted and stand counts made if emergence has occurred.

Fields with severely damaged

## Other Crops

Winter wheat along the southern tier of counties is jointing. In most places where wheat was jointing last week, temperatures did not get below the mid 20s and should not have been damaged. Some wheat that was further along in the southern Panhandle and southwestern Nebraska may show damage to the main stem head, but recent moisture may stimulate more extensive tillering. Yield losses should be minimal.

Some soybean acres have been planted, and these may need to be replanted if cool conditions continue. Monitor soil temperatures and crop development over the next two weeks. Much of the sugarbeet crop in the Panhandle had emerged last week and was killed by overnight temperatures in the mid teens. Replanting is proceeding where seed is available.

Todd Peterson, with Roger Elmore, Bob Klein, and Drew Lyon, Extension Cropping Systems Specialists

stands may need to be replanted. If this is the case, apply soil insecticides when replanting to protect the seeds and seedlings from insects. If the stand is not severely reduced and a center pivot is on the field, use chemigation to apply a soil insecticide. If chemigation is not an option, little can be done after planting to protect a stand from soil insect damage. Fields experiencing losses due to cutworms can be treated postemergence with insecticides such as Pounce, Ambush, Lorsban, or Asana XL.

*Scout all fields weekly, even if insecticides have been applied.*

Steve Danielson  
Extension Entomologist

# Evaluate potential problems when combining liquid nitrogen and herbicides to save time

Corn and sorghum sometimes emerge before preemergence herbicides can be applied. While certain preemergence herbicides can be applied after crop emergence, they are not labeled for application with fluid fertilizer after emergence, due to risk of injury. (Emerged corn is more tolerant than sorghum of fertilizer-herbicide mixtures.) Some growers may accept the injury in return for accomplishing two jobs at once.

Dual and Lasso applied with liquid nitrogen on emerged corn and sorghum would result in injury similar to fertilizer alone. Injury is more serious with atrazine

combinations and even more severe with Bladex. Emerged corn and sorghum are most tolerant in the spike stage to liquid nitrogen and these herbicides and become less tolerant as plants grow.

Experiments conducted in Minnesota have shown that atrazine applied to four-leaf corn with 60 lbs nitrogen per acre caused heavy burning with widespread necrosis on the 2nd, 3rd and 4th leaves. This injury, from which the corn recovered, was similar to injury caused by 150 lbs N/acre applied by itself. Injury to emerged corn is usually more severe with herbicide combinations

in liquid nitrogen than fertilizer alone and is particularly severe with Bladex or Extrazine in liquid nitrogen. If liquid nitrogen must be applied to emerged corn, early post herbicides should be applied in water several days before the liquid nitrogen application. Cool, wet weather can be expected to increase the injury caused by such treatment.

**Alex Martin**  
Extension Weeds Specialist  
**John McNamara**  
Extension Assistant-Weed  
Science

## *Test fertilizer-herbicide compatibility*

Combining liquid nitrogen with a preemergence herbicide may be a time-saver for farmers facing a spring rush.

Compatibility of liquid nitrogen with most herbicides is usually acceptable but should be checked using the following test before mixing large quantities.

### **Compatibility test**

The following compatibility test is based on a 25-gallon per acre application:

1. Add 1 pint of fertilizer to each of two jars.
2. To one jar add 1/4 tsp (1.2 ml) of a compatibility agent and stir.
3. To both jars add the appropriate amount of herbicide(s). Add dry herbicides first, flowables second, and emulsifiable concentrates last. Stir after adding each material.

**Dry herbicide:** For each pound per acre to be applied, add 1.5 level tsps.

**Liquid herbicide:** For each pint per acre to be applied, add 1/2 tsp or 2.5 ml.

4. Shake or stir the contents of each jar thoroughly and let the mixtures stand for 15 minutes.

If either mixture separates but can be readily remixed, the mixture can be sprayed with good agitation. Comparing the two jars will indicate if a compatibility agent is needed.

Compatibility of mixtures can often be improved by

- 1) mixing the dry fertilizer with water before addition
- 2) adding 1/2 the compatibility agent to the fertilizer; the other 1/2 to the emulsifiable or flowable herbicide before adding to the mixture.

**General mixing procedure:** Fill the spray tank 1/4-1/2 full with liquid fertilizer and start the agitation. Add a compatibility agent if needed. Add the dry herbicide to the spray tank. Dry herbicides and flowables often mix more readily if mixed with a small quantity of water before addition to the fertilizer. Continue filling the tank with liquid fertilizer until it is 90% full. At this point add flowable herbicide, followed by emulsifiable concentrates and oil concentrates.

**Alex Martin**  
Extension Weeds Specialist  
**John McNamara**  
Extension Assistant-Weed  
Science

# Selecting seed treatments for no-till

As a follow-up to the article by Dr. David Wysong on seed treatments for soybeans in minimum or no-till planting (94-4, 23), a partial list of treatment products is listed below. Six of the most common diseases that either reside in the soil or are seedborne are listed. Relative effectiveness of the fungicides or fungicide combinations are rated on a scale of one to four.

Products vary in cost per acre for application.

Note: Captan has been shown to reduce rhizobium nodule formation and consequentially affect plant vigor.

Diane Merrell  
Extension Assistant and Diagnostician

Soybean seed treatment products		Pythium	Early Season Phytophthora	Rhizoctonia	Seedborne Pod and Stem Blight	Seedborne Stem Canker	Seedborne Anthracnose
Grower Applied Seed Treatments	Active Ingredients						
Enhance™	Carboxin + Captan	2		3	2	2	3
Apron® Terraclor®	Metalaxyl + PCNB	4	4	3			
Apron®	Metalaxyl	4	4				
Triple Noctin® L	Molybdenum + thiram + nitrogen fixing bacteria	2		2	2	2	2
Capt'n Moly™	Captan + molybdenum	2		2	1	1	2
Moly T™	Thiram + molybdenum	2		2	2	2	2
Prevail	Metalaxyl + PCNB + Carboxin	4	4	3	2	2	2

1 = Poor Control                      3 = Good Control  
2 = Fair Control                      4 = Excellent Control

## Correction

In the April 15, 1994 issue of CropWatch, my article entitled *Soybean Seed Treatment Recommended* discussed the potential influence of various conservation tillage systems on early season soybean diseases. One of the tillage systems mentioned was ridge-till in relation to soil temperatures. The statement read:

1. Cooler soil. Because no-till or ridge-till fields tend to have more surface residue, soils warm up more slowly. If no-till growers attempt to plant as early as their conventional-till neighbors, germination may be delayed and seedling vigor may decrease.

Relative to ridge-till, the first sentence is incorrect. The fact is that ridge-tilled soil warms up quickly, for two reasons:

- (1) the lack of plant residue on the ridge and
- (2) the elevated ridge provides drainage from the row. With ridge-till, these two factors enhance rather than delay soybean seed germination and seedling establishment.

David S. Wysong  
Extension Plant Pathologist

# Delayed herbicide applications

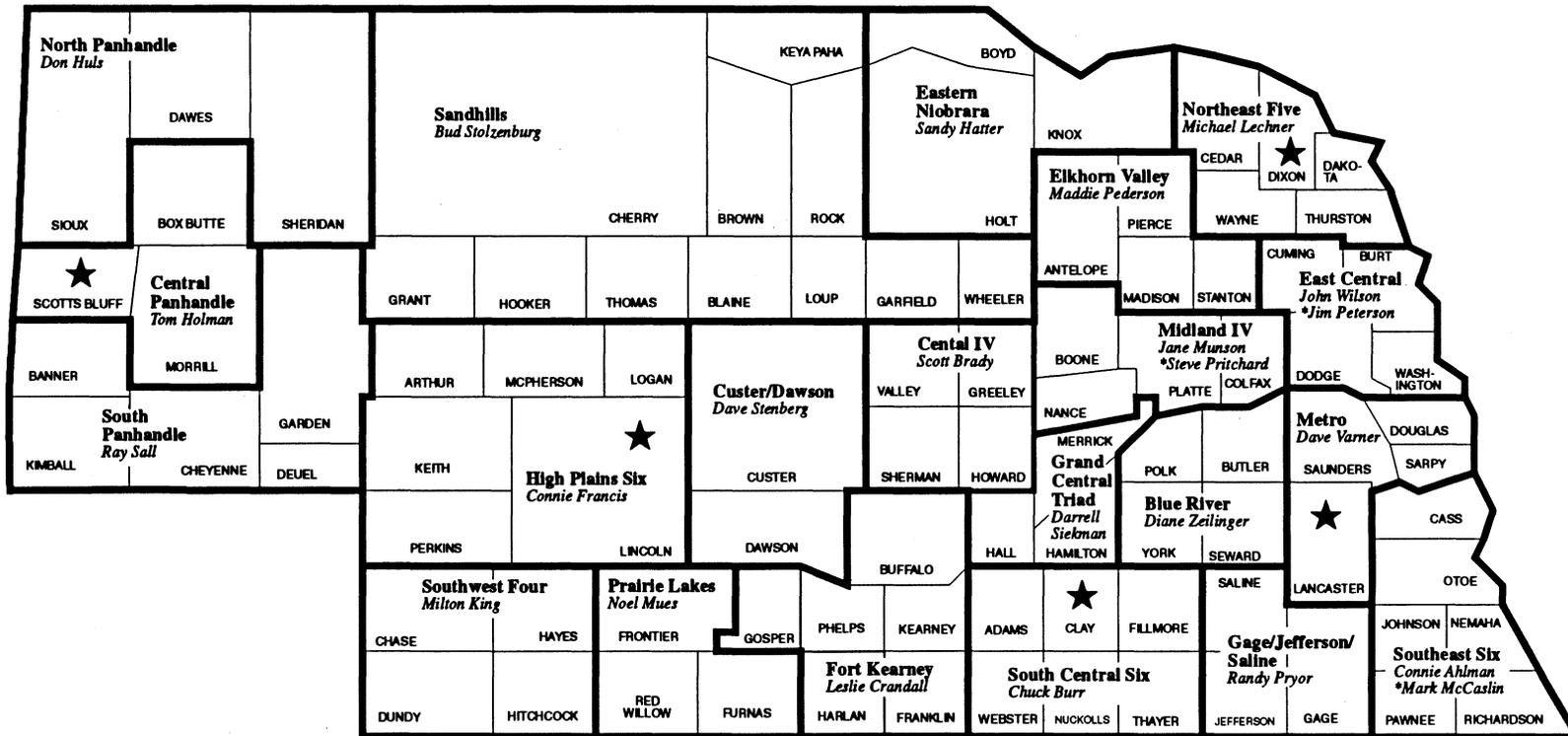
Timely herbicide application is not always possible in the busy planting season. Some — but not all — preemergence herbicides can be applied early postemergence with good results. However, most of these treatments are more effective when applied preemergence than postemergence, especially against annual grasses. A rain or sprinkler irrigation is required after application for best control.

The table below lists herbicides commonly used in Nebraska that can be used both **preemergence** and **early postemergence**. Label limitations prevent certain soil applied compounds from being used after crop emergence.

Postemergence application periods for common preemergence herbicides		
<i>Treatment</i>	<i>Crop stage</i>	<i>Weed stage</i>
<b>Corn</b>		
Aatrex/Atrazine	0-12"	1.5" grass
Bicep	0-5"	2-leaf
Bladex 80W	before 5th leaf	1.5" grass
Dual	0-5" *	unemerged
Dual + Aatrex	0-5"	2-leaf
Extrazine	before 5th leaf	1.5"
Frontier	0-8"	unemerged
Guardzman	0-8"	1.5"
Lariat	0-5"	2-leaf
Lasso	0-5"	2-leaf
Lasso + Atrazine	0-5"	2-leaf
Lasso + Banvel	0-3"	2-leaf
Marksman	0-5"	0-4" broadleaf
Prowl + Atrazine	up to 2-leaf	1"
Prowl + Bladex 80W	up to 2-leaf	1"
Ramrod + Atrazine	0-5" *	2-leaf
Bullet	0-5" *	2-leaf
Pursuit	corn <8-leaf	weeds <3"
<b>Soybeans</b>		
Dual	through unifoliate stage*	unemerged
Frontier	up to unifoliate	unemerged
Lasso	through unifoliate stage*	unemerged
Pursuit	----	weeds <3"
<b>Grain Sorghum</b>		
Aatrex/Atrazine	0-12"	1 1/2"
Bicep	up to 5"	2-leaf
Dual	up to 5"	unemerged
Lariat	up to 5"	2-leaf
Lasso	up to 5"	unemerged
Lasso + Atrazine	up to 5"	2-leaf
Ramrod + Atrazine	0-5"	2-leaf
Bullet	0-5"	2-leaf
*Not labeled postemergence; however, experience indicates little chance of crop injury.		

# Extension Programming Units

The April 15 *Crop Watch* listed Extension educators and assistants specializing in the areas of pest management and crop, soil and range management in the state's 21 Extension Programming Units (EPUs). Use the map below to determine which EPU you're in and use the list on page 32 (94-4) to help you identify the correct individual to help you with your crop production questions.



★ Research & Extension Center

\*EPU Coordinator effective 7-1-94.

# Storms sweep state, more rain expected

Severe thunderstorms, high winds, hail, snow, and rain swept through the state last week, delaying fieldwork and hampering early growth. Snow accumulations of 3-6 inches were reported in the Chadron area April 25. As the spring storm moved east, snows spread slowly across the state. From April 25 to April 30, over 10 inches of snow was reported in the Ord and Greeley areas. A general swath of 4-6 inches occurred from southwest to northeast Nebraska. Southeast Nebraska reported snowfall of a trace to 2 inches. The storms ushered in colder temperatures and crop damage has occurred (see pages 45-47).

A gradual warmup with above normal precipitation has been forecast for the next 10 days. Soil temperatures should warm up gradually and reduce seed rot damage. Another storm system is forecast to reach

the central United States May 7-9, with severe thunderstorms and heavy rain possible Saturday and Sunday.

The new 30- and 90-day forecasts have been received from Washington, D.C. The Missouri, Ohio, and upper Mississippi river basins can expect above normal precipitation. Normal temperatures are forecast for Nebraska, but areas east and south of the state should have above normal temperatures. The 90-day forecast calls for below normal temperatures across the upper midwest, including Nebraska. In addition, above normal precipitation is forecast for the entire corn belt. A note of caution, the previous 90-day forecast called for normal temperatures and below normal precipitation.

Al Dutcher  
State Climatologist

## Soil temperature summary Seven-day summary ending May 1

	Ave	Norm.	Hi/Day	Lo/Day	Last Read
Ainsworth	46.5	58.1	60/1	39/4	48.3
Alliance	40.8	56.1	56/1	35/6	43.5
Arthur	43.9	56.2	55/1	38/5	49.2
Beatrice	52.2	61.2	63/1	45/6	46.4
Central City	48.5	61.1	61/1	43/5	47.3
Clay Center	48.7	60.6	61/1	43/5	46.8
Concord	44.7	59.4	63/1	36/5	41.9
Curtis	47.4	59.6	62/1	40/5	46.2
Elgin	45.0	58.8	62/1	37/6	39.7
Gordon	43.2	55.1	55/1	38/4	48.2
Grant	46.1	59.5	60/1	40/5	47.7
Holdrege	52.0	60.3	65/1	45/5	48.0
Lincoln	53.7	61.3	69/1	44/6	48.6
McCook	50.1	60.8	65/1	43/5	47.9
Mead	50.9	60.8	65/1	43/6	46.5
North Platte	46.0	58.5	61/1	38/4	47.9
O'Neill	46.9	58.4	60/1	39/5	46.8
Ord	48.2	59.2	68/1	38/5	46.9
Red Cloud	58.2	61.3	72/1	51/6	54.7
Rising City	53.3	60.5	70/1	46/5	49.8
Scottsbluff	45.9	57.0	57/1	39/3	53.9
Shelton	51.6	60.6	62/1	46/6	47.4
Sidney	46.2	55.8	58/1	41/5	48.8
Tarnov	48.7	59.3	64/1	42/5	46.0
West Point	47.5	59.7	61/1	42/5	43.5

At 4 inches

## Growing degree day accumulations

as of May 1

Accumulated from	Celsius		Fahrenheit			
	Base 0 <sup>1</sup>	Base 40 <sup>2</sup>	Base 48 <sup>3</sup>	Base 50 <sup>4</sup>	Base 50 <sup>4</sup>	Base 50 <sup>4</sup>
	3/1	4/1	3/1	4/1	1/1	5/1
Ainsworth	465	273	552	325	387	5
Alliance	479	279	589	342	411	7
Arthur	498	286	602	342	412	6
Beatrice	568	331	669	388	503	3
Central City	512	309	606	364	443	2
Clay Center	522	307	611	360	448	2
Concord	448	281	511	325	350	1
Curtis	536	302	652	360	485	3
Elgin	457	273	517	316	363	1
Gordon	439	268	526	327	327	6
Grant	513	286	627	345	445	5
Holdrege	548	309	655	363	485	3
Lincoln	584	343	682	402	506	3
McCook	574	316	705	382	538	4
Mead	520	308	616	365	458	3
North Platte	523	291	645	350	473	4
O'Neill	441	264	515	309	366	2
Ord	483	285	576	339	425	2
Red Cloud	577	333	687	395	510	3
Rising City	507	306	591	357	417	2
Scottsbluff	509	294	636	366	476	9
Shelton	532	316	632	374	459	2
Sidney	488	275	602	339	445	7
Tarnov	482	287	566	341	398	1
West Point	489	299	565	346	406	1

<sup>1</sup>Recent research on winter wheat development uses the 0 (32°F) base.

<sup>2</sup>Base 40 has traditionally been used to track winter wheat development.

<sup>3</sup>Base 48 is used to track alfalfa weevil development.

<sup>4</sup>Base 50 is used to track corn, sorghum and soybeans.