2000

*Crop Watch* No. 2000-12, June 9, 2000

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Drought update

Southeast moves to "extreme" category

Soil moisture conditions continue to deteriorate in southeast Nebraska and in an area moving north and west from there. The National Drought Monitor changed the drought status to extreme for southeastern Nebraska and was to update its listing June 8. Except for the Panhandle and north central Nebraska, all the state is included in some category of drought.

June is usually Nebraska's wettest month with eastern Nebraska receiving an average of .15 of rain a day or 4.5 inches for the month. With most of the state receiving little precipitation during the first week of June and extended forecasts predicting only scattered showers, the precipitation deficit is expected to continue growing. Recent storms packed with high winds, hail and little rain have sometimes damaged crops more than helped. In addition runoff has been high and infiltration has been limited from any short heavy rains.

Eight counties in southeast Nebraska have applied to the USDA's Farm Service Agency for emergency grazing of CRP acres and 12 more counties have begun the application process. In western Iowa, 24 counties have been granted emergency permission for grazing CRP.

Al Dutcher
NU state climatologist, Lincoln

NRCS update

Nathan McCaleb, State Soil Scientist, Natural Resources Conservation Service, who has been out in area corn fields taking soil moisture readings this week: The next four to six weeks will be critical for receiving moisture across much of the state, and even sooner in some areas.

(Continued on page 101)
Ron Seymour, Extension educator in Adams County: Dryland crops continue to show drought stress. Wheat heads are filling in some fields but in others the plants are beginning to die. Wheat plants in a few fields have symptoms of wheat stem maggot infestation but the incidence, as typical, was minor. Dryland alfalfa is regrowing slowly after the first cutting whereas irrigated alfalfa is now 9-12 inches. Irrigated field corn is in the 5-6 leaf stage with few problems. Soybean development varies; some fields are in the single trifoliate stage while others have three trifoliates. Most soybean fields have minor bean leaf beetle feeding damage.

Keith Glewen, Extension educator in Saunders County: Crop conditions are deteriorating rapidly. Dryland corn is expressing nitrogen stress due to the lack of soil mineralization and root development. Moisture stress is apparent by mid day in many fields. The little rain we have received is widely scattered. The appearance of many corn fields is unusual compared to the wet years of the 1990s.

Doug Anderson, Extension educator in Central IV: The corn is about in the 3-5 leaf stage and beans are up. We have had enough moisture to get a good stand but not enough to sustain growth for any length of time. The cooler temperatures at the start of the week helped some. The first cutting of alfalfa was very short -- approximately one-third of a normal cutting. Regrowth, if any, is very slow.

Soil moisture is very low and in my opinion we are experiencing a drought at the present time.

Ray Weed, Extension educator in Kimball and Banner counties: Much of the corn here is at the five leaf stage or less. Corn in some center pivot irrigated fields is at the 7-8 leaf stage. Some of the corn is already undergoing stress from the drought and weed competition, and had been previously stress by hail and a freeze. Dryland corn in southern Kimball County is especially vulnerable right now. Wheat hailed earlier this year is not doing as well as had been originally expected.

We have some early questions coming in regarding control of Canada thistle in the emerged corn. Stinger is one of the herbicide options if the corn is non GMO.

Our wheat crop is still variable in terms of development and diseases and insect damage. We do have some very dry areas in the counties now.

Gary Hall, Extension educator in Phelps and Gosper counties: Furrow irrigators are hilling 6-8 inch corn and anticipating a second hilling later just to get water to the corn. Many are scheduled to receive water next week from Central Irrigation District, although it may be too early for a lot of the corn. The early planted corn is at the 7-8 leaf stage. Pivot irrigation systems are being used extensively.

Corn is showing the stress. I am suggesting that if cultivations aren’t done to forego that operation and hill if possible. Topsoil moisture is nonexistent and subsoil is minimal.

Andy Christansen, Extension educator in Hamilton County: We have a couple of fields where 10-15% of the corn is falling down or has died. After close examination it appears the damage may resulted from rotary hoeing a little late and the dry soil offering little chance for roots to reattach. The plants appear to have severe rootworm pruning. Those plants that haven’t died are hanging on by one or two roots.
**Drought update** (Continued from page 99)

In one southeast Nebraska field we dug down 12 inches and the soil was as hard as a brick — there was no moisture. Long-time farmers are telling us that while the drought of ’88 was bad, they haven’t seen anything like this since the 1930s.

While this year is particularly dry, droughts are part of Nebraska’s normal weather patterns. You’re going to have dry years and wet years and using good conservation measures will help with both.

Minimum tillage will provide residue to help retain soil moisture. Terraces and contour farming will reduce runoff after heavy rains by allowing the moisture to seep into the subsoil. Conservation buffers will help trap the water and sediment which might otherwise be lost to runoff.

**Crop update**

**Nebraska Agricultural Statistics** (June 5 report): A mostly dry week provided good weather for putting up hay, but little relief to drought stressed crop areas. Gusty winds continued to dry soils and accelerate the wheat crop toward an early harvest.

**Wheat**

The winter wheat crop condition showed little change last week and rated 11% very poor, 19% poor, 33% fair, 33% good, and 4% excellent. As of Sunday, 98% of the crop had headed, ahead of the five-year average at 63%. About 36% of the crop was turning color, well ahead of 3% last year and 1% average. Many acres in southeast Nebraska have been cut for hay, with remaining fields expected to be harvested the third week of June.

**Corn**

Corn condition was rated 1% very poor, 6% poor, 34% fair, 45% good, and 14% excellent. Producers with gravity flow irrigation were anxious to get enough height on the crop to ridge and start irrigation. Dryland fields in southeast Nebraska continued to deteriorate.

**Soybean**

About 92% of the soybean crop has emerged, well ahead of last year at 41% and an average at 43%. Soybean condition slipped last week and rated 1% very poor, 9% poor, 41% fair, 40% good, and 9% excellent.

**Sorghum**

Sorghum planting moved ahead to 93%, well ahead of last year at 55% and average at 60%. About 79% had emerged, well ahead of 19% last year and 31% average.

**Dry bean**

Dry bean planting was 72% complete, well ahead of 54% last year and 30% average.

**Alfalfa**

Alfalfa harvest was two thirds complete at 66%, compared to 45% last year and 22% for the average. First cutting yields have been significantly reduced in many eastern counties. Condition was rated at 12% very poor, 13% poor, 30% fair, 41% good, and 4% excellent. Conditions in northern Nebraska improved, while alfalfa condition in southern counties continued to decline.

**Pasture and range**

Pasture and range condition rated 12% very poor, 26% poor, 35% fair, 21% good and 6% excellent.

**Precipitation summary (in inches)**

Seven-day summary ending June 6

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For more farm, ranch and drought information, visit ruralroutes.unl.edu
Irrigation management in a dry year

Irrigators may have some recourse for nine months of below normal precipitation, but even that is not without its own set of challenges. In some areas, the soil profile has been so depleted of moisture that continuous irrigation may be needed in corn to both replenish soil moisture and provide water to the developing plant before the normal start of the irrigation season. If irrigation hasn’t already been started in areas with severely limited soil moisture, there may not be enough time to accomplish both goals.

Most irrigation systems used in Nebraska are not designed to meet the peak water needs of the crop. They rely on having an adequate level of soil moisture to help meet the plant’s peak needs. This soil moisture is usually provided through off-season and early season rainfall.

In eastern Nebraska, corn usually requires 26 inches of evapotranspiration in a typical crop production year. To achieve that amount this year, extensive and timely irrigation may be necessary in some areas. Will it be cost efficient. Usually, yes. Generally you should gain back 5-6 bushels of corn for every inch of water the plant uses for evapotranspiration.

Center pivot irrigation

The irrigation season has already started in many southern Nebraska center-pivot corn fields where farmers are addressing soil depletion and early crop needs. For those who haven’t started irrigating yet, however, replenishing the soil profile may be difficult, depending on soil moisture status and how they managed late irrigations last fall. Optimistically, the soil moisture profile should be replenished by the third week of June to provide for optimum water availability along with irrigation.

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To determine the irrigation needs of a given field, it will be important to carefully calculate:
1) current and projected crop water use, and
2) current soil water content.
Crop water use depends on prevailing climatic conditions and the stage of crop development. Early and late in the growing season, daily crop water use or evapotranspiration (ET) is less than 0.15 inches per day. When corn fields approach the reproductive stage, crop water use ranges from 0.37 inches per day in western Nebraska to 0.33 inches per day in eastern Nebraska. Early planted corn that emerged in the Beatrice area May 3 is already estimated to be using more than .20 a day. In the next three weeks, developing corn plants could be expected to need at least 3-4 inches of moisture.

To determine the current soil water content, take soil samples three to four feet deep. A silty clay loam soil typically holds about eight inches of water in a four-foot profile, while a fine sand holds only four inches. Optimistically, the deficit soil water profile should be refilled by the third week of June to provide for optimum water availability.

Dick Deloughery, water quality education coordinator at the Northeast Research and Extension Center, recommends that irrigators not let recent, spotty rains lull them into a false sense of security. He recently probed for moisture in two northeast Nebraska silt loam corn fields and found water in the second foot at 50-75% of water holding capacity, but in the third foot, it was below 50% capacity. To minimize potential plant stress, available water capacity should be maintained above the 50% level.

Several methods can be used to measure soil moisture, including the hand-feel method, tensionmeters or moisture blocks.
To determine how much to irrigate, add together the amount needed for crop growth for the next two to three weeks and the current soil moisture deficit. For example, you might want to provide four inches of water for depleted soil moisture and three inches for crop growth. With a 125-acre field, using an irrigation system providing 600 gallons per minute and running at 85% efficiency, it would take approximately 23 days to replace 5 inches of moisture. To replace the 7 inches estimated to be needed, it would take more than 30 days.

With a system providing 800 gallons of water per minute, it would take about 18 days for 5 inches and about 25 days to replace 7 inches.

Using the above example with a 600 gallon-per-minute capacity system, irrigation should have started in late May and be running continuously until the typical start of irrigation.

Remember that exposed wet soil encourages evaporation so apply at least 0.75 to 1.5 inches with each irrigation. In many cases this year irrigation system capacity and infiltration will be the limiting factors. Crop residue also will help reduce evaporation and improve the movement of available moisture down into the soil profile. In more typical years by the time irrigation starts, the crop canopy will shade the soil, helping reduce evaporation. Until the canopy closes, early season evaporation may be higher than usual.

Furrow irrigation

Furrow irrigators may be particularly challenged this year to provide enough water early enough to both help replenish the soil profile and provide for crop growth. Smaller capacity irrigation wells further limit management options.

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Irrigation  (Continued from page 102)

Cultivation and hilling operations will likely be earlier than usual this year to stay ahead of the weeds and provide for early irrigation. To save as much soil moisture as possible, adjust the timing of these operations so they occur as closely together as possible without damaging the plant. In some cases producers may move directly to hilling and skip the traditional first cultivation to save soil moisture and to speed up operations. Every time the top soil is inverted, as much as 0.5 inches of moisture is loss to evaporation. Beginning irrigation as soon as possible after hilling will also help reduce moisture loss by not allowing the furrow to dry out again.

It will be important with the first irrigation to advance the water down the furrow quickly enough to reach the opposite end without overwatering the first half. Given the dry conditions this year, there's likely to be loose soil at the bottom of the furrow which may clog the furrow during the first irrigation.

Packing the furrow or using surge flow irrigation may help enhance water flow to the end of the furrow. Use a very light tractor with narrow wheels to firm up the furrows and provide for better water flow and infiltration. Residue, which didn't break down as much as usual during the mild winter, also may clog the furrow and necessitate a cultivation to break it up.

Surge irrigation also can be used to more effectively advance water. If you don't use surge irrigation, you may try manually starting and stopping an irrigation set to more effectively move water to the end of the field.

Crop water needs

While corn is approaching its reproductive period and peak water use in early July, soybeans are still in the vegetative stage. While soybean fields may need some irrigation to sustain plant health, depending on soil moisture levels, irrigating too much now will encourage vegetative growth and be less beneficial than later irrigations. Soybeans can sustain quite a bit of stress during the vegetative stage and will do relatively well if they have enough water to achieve adequate height and a full canopy by the start of full flower and pod set stage, when more extensive irrigation will be needed.

A number of NebGuides address irrigation management issues, including: Firming Irrigation Furrows to Improve Irrigation Performance, G97-1340; Managing Furrow Irrigation Systems, G97-1338; Evapotranspiration or Crop Water Use, G90-992, Surge Irrigation Management, NF94-179; and Surge Irrigation, NF94-176: Irrigating Corn, G98-1354; Irrigating Soybean, G98-1367. Contact your local NU Cooperative Extension office for copies of these publications.

Dean Eisenhauer, Professor 
Biological Systems Engineering

Nebraska wheat plot tours to be in June

South Central

June 23, 6 p.m. CT — Webster County. Location: 4 miles south and 1/2 mile west of Bladen spur on Hwy 4 West, on north side of road. Cooperators: Meredith Engelhardt. Contact: Extension Educator Chuck Burr at (402) 762-3644.

West Central

June 13, 7 p.m. CT — Red Willow County. Location: mile marker 22.2 on US 83, six miles north of McCook, on east side of road. Cooperator: Bernie Walz, Indianola. Contact: Kent Been at (308) 345-3390.

June 14, 7 p.m. CT — Furnas County. Location: mile marker 144.6 on US Hwy 34 and 6; 5 miles east of Arapahoe, 2.8 miles north, on east side of road. Cooperator: Dennis Gardner, Edison. Contact Extension educator Noel Mues at (308) 268-3105.

June 15, 10 a.m. MT — Keith County. Location: mile marker 144.6 on US Hwy 26, or 2 miles west of Junction of Hwys. 26 and 61 north of Ogallala, on north side of road. Cooperator: Jim Welsh and Larry Chandler, Brule. Contact: Extension Educator Larry Peterson at (308) 352-4340.

June 15, 7 p.m. MT — Perkins County. Location: from I-80 East 133 (Roscoe), 5 miles south, 1 east, 7 south, 1.33 west, north of farm buildings. Cooperator: Tom Kraus, Madrid. Contact: Extension Educator Larry Peterson at (308) 352-4340.

Panhandle

June 15, 9 a.m. MT — Scotts Bluff County/Goshen County, WY. Tour leaves from Wheatland School: 16 miles west on 92 to Stegall Road, 4 miles south on Stegall Road to County Road P, 2 miles west on County Road P to County Road 5. Actual plot location is as follows: Louis Hubbs Farm, 10.5 miles east of Hawk Springs, WY. From Scottsbluff/Gering, 13 miles west on Hwy 92, to Stegall Road, south 4 miles to County Road P, west 5.5 miles to state line road, south 2 miles, west .6 miles, on south side of road. Contact: NU Extension Educator Jim Schild at (308) 436-6622 or Jim Krall at (307) 632-7126.

June 15, 6:30 p.m. MT — Morrill County. Located on the Don Lease Farm. From Bridgeport, go 19 miles southwest on Hwy 88 to Morrill-Banner County line, which is Rd 73, 2 miles south, then .3 miles east, on north side of road. Contact: Extension Educator Tom Holman at (308) 262-1022.

(Continued on page 106)
ECB moths in flight; scout fields now

European corn borer moth flight began early this year, which is understandable given the mild winter we had. Light traps began to capture moths on May 18 at Clay Center and on May 16 at Concord. Current information on black light trap catches can be found at http://www.ianr.unl.edu/ianr/entomol/fldcrops/fldcrops.htm

Timely and accurate scouting is the key to managing European corn borer in standard (non-Bt) corn hybrids. Remember that conditions are localized and fields must be scouted on an individual basis to make accurate decisions.

Corn borer larval survival depends on several factors. High humidity and warm temperatures are ideal for establishment of larvae in the whorl. Egg masses are white, with 5 to 40 eggs in each mass, and laid on the underside of leaves near the midrib. The masses look like fish scales flattened against the leaf. In four to seven days the heads of the developing larvae will be visible, and the eggs will appear spotted. This is the “blackhead” stage; these eggs normally hatch within 24 hours. As the larvae enter the whorl to feed on the developing tissue, the feeding scars (shot-holes) appear as the leaves emerge from the whorl. Larvae will remain within the whorl for 7 to 14 days before boring into the stalk.

Corn below about 16 inches extended leaf height (distance from the tip of the leaf pulled up vertically to ground, about six-leaf stage) is unlikely to support young larvae because of the presence of a substance known as DIMBOA, a natural resistance factor. As the plants grow the level of DIMBOA decreases, so plants above the 16 inch extended leaf height will generally support corn borers. First generation corn borers prefer taller plants for egg laying, therefore, the earliest planted fields are more likely to have higher populations. Scout these fields first, but do not neglect other fields because any cornfield is a potential target and should be scouted.

Now that Bt corn is being planted widely, be sure you know whether the field you are scouting was planted to Bt corn. In Bt corn, corn borer injury to whorl stage plants should be limited to a few tiny pin holes where larvae initially fed before ingesting a lethal dose of Bt toxin. However, seed lots may contain a small percentage of off-type seed (typically less than 4%) which does not produce sufficient toxin levels to kill corn borer larvae. If greater than 4% of plants show significant leaf feeding damage in a Bt cornfield, check to confirm it is corn borers causing the injury (other caterpillars such as corn earworms, or common stalk borer are not controlled by Bt corns currently available). If you believe that corn

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Worksheet for first generation European corn borer

To estimate the cost/benefits of applying an insecticide for European corn borers, you also need to know the cost per acre of the insecticide application ($/acre), the anticipated price of grain ($/bu), and yield potential (bu/acre) of your hybrid. Assume 5% yield loss/borer/plant and a proportion of larval population reduction by insecticide application of 0.75.

Average number of larvae/plant (percent of injured plants X number of larvae/injured plant) _______ larvae/plant

Potential yield loss if all larvae survive (number of larvae/plant X 5% loss/borer/plant) _______ % loss

Potential bushel loss (potential yield loss X yield potential) _______ bu/acre

Potential dollar loss (potential bushel loss X estimated price of corn) _______ dollars loss /acre

Preventable loss (potential dollar loss X proportion of larval population reduction) _______ dollars/acre

All of the above numbers are variable and are unique to each field and farm management operation. Use the formula several times using different figures for yield, price, and cost of application to see how each one affects the outcome. Use the figures closest to your situation to make the final determination.
European corn borer (Continued from page 104)

borer is causing the injury, contact a representative of the company who sold the seed to investigate the situation more completely.

To determine the need for treatment, scout at least 20-25 consecutive plants in at least four to five sites in the field (100 plants minimum per field). The scouting locations should be randomly selected and representative of the field as a whole. At each scouting location, randomly select the first plant to be sampled. Count the number of plants showing shot-hole feeding and determine the percent of infested plants. Next, pull the whorls from at least two randomly selected infested plants in each set of 20-25 plants. Unroll the leaves and count the number of larvae in the whorl and determine the number of larvae per infested plant. Young corn borers usually suffer from 60% to 85% or higher mortality due to natural enemies, weather and disease, so try to wait to make treatment decisions until most of the borers are second instar to take advantage of natural larval mortality.

Use the information gathered from field scouting to complete the accompanying worksheet. This takes you through the calculations needed to estimate the preventable loss if an insecticide is used. Compare the preventable loss to the total cost of insecticide application. An insecticide application is economically justified if preventable loss exceeds the total cost of insecticide application. An interactive version of the worksheet is available at http://ianrwww.unl.edu/forms/forms.skp/ecb_1st.html

Treatments will be effective only if borers are still feeding in the whorl. Treatments made after corn borers begin to bore into the stalk (when they are about half grown) will not be effective. Based on research data, the best control is achieved with aerial or ground applied granular formulations or liquid applications through sprinkler irrigation systems, which provide the best penetration of insecticide into the whorl where the corn borer larvae feed.

Insecticides

Many insecticides are registered for control of first generation European corn borers and most will do a good job if applied properly at the right time. The Bt-based insecticides Dipel, Condor, M-Peril and others are effective and do not reduce populations of corn borer natural enemies. Refer to the University of Nebraska Department of Entomology Web site at for a list of suggested insecticides.

Additional information on first generation European corn borer management is available in First Generation European Corn Borer Scouting and Treatment Decisions, NebFact 98-364. This publication is available from your local cooperative Extension office or at

Tom Hun, Extension Entomologist
Keith Jarvi, IPM Extension Assistant
Northeast Research and Extension Center

Chinch bugs in sorghum and corn

Chinch bug numbers were low in most wheat, sorghum, and corn fields surveyed in Saunders, Lancaster, Saline, and Gage counties June 2, 3, and 5. The highest numbers were in southern Gage County where one corn field next to wheat averaged 0-20 adult chinch bugs per plant, with first instar nymphs on a few scattered plants. A few first instar chinch bugs were found in the wheat next to the corn. Two sorghum fields next to wheat in the same area averaged 0-10 first instars per plant. From 0-100 first instars per foot of row were found in the adjacent wheat.

Although chinch bug numbers are not high in most fields, growers should check fields frequently during the next couple of weeks to identify problem fields. Chinch bug migration should increase during this period and seedling sorghum next to wheat is highly susceptible to chinch bugs. As few as 5-10 chinch bugs per plant can stunt seedlings. Larger plants can withstand larger numbers.

As chinch bugs start to migrate into sorghum or corn, spraying border rows may be beneficial. Chinch bug migration into sorghum or corn from adjacent pastures, grass waterways, or road side ditches also occurs. Chinch bugs move into protected areas on the plants such as the root crown or behind leaf axils. Apply insecticides in 30-40 gallons of water per acre with drop nozzles to achieve better control.

Chinch bug migration may continue for up to two weeks so repeated applications may be necessary. Insecticides currently registered for control of chinch bugs on sorghum include Baythroid 2E, Furadan 4F, Lorsban 4E, Sevin, and Warrior 1EC.

More information about chinch bug control is available on the University of Nebraska Entomology Web page (http://ianrwww.unl.edu/entomol/pmguides/sorghuide.htm) and on the insecticide labels.

Z B Mayo
Extension Entomologist

Field day June 28

The NU High Plains Ag Lab will be celebrating its 30th anniversary with an alldaylong field day June 28. See next week's Crop Watch for more information.
Spider mites reported in corn; hot, dry weather favors pest

It's not too early to be scouting for spider mites on corn. I received a report of a damaging infestation of Banks grass mites moving out of grassy borders into a corn field near Geneva. The infestation is heavy enough that it is killing some lower leaves. Normally, early season infestations of spider mites on corn do not become established and often are washed off by rain. Given the dry conditions this year, early season infestations may be more likely to become established.

In situations where spider mites are migrating into a field, a border treatment may be the best option to minimize control costs. Treatment options include Capture 2EC, 5.12-6.4 fl oz per acre, or Dimethoate 2/3-1 pint per acre.

Additional information is available in the NebGuide, Spider Mite Management in Corn and Soybeans, NebGuide G93-1167 (http://www.ianr.unl.edu/pubs/insects/g1167.htm).

Bob Wright, Extension Entomologist, South Central REC

Severe Bank's grass mite infestations have been seen in some cornfields in western Nebraska. To date, severely infested fields have been found next to winter wheat fields and the mites seem to be moving out of the wheat and infesting the young corn. Four to six leaf corn has been found with four to six leaves infested and the plants showing obvious leaf yellowing and purpling and some leaf dieback.

The mites obviously overwintered very well and are now moving out of the wheat as it is maturing and drying down. Cornfields adjacent to grassy areas may also be at high risk to infestation from Bank's grass mites. Two scenarios or some combination of the two may occur in this situation.

First, increased mite populations may result in increased natural enemy populations and early control of the mites. Secondly, if treatments are required, we may be set up for repeated treatments for the rest of the summer to keep the mites below serious levels. Environmental conditions will have a major impact on which of these scenarios play out. Continued hot and dry weather will favor rapid increases in mites; whereas cooler or wet weather will favor the buildup and effectiveness of natural enemies.

Gary L. Hein
Extension Entomologist
Panhandle REC, Scottsbluff

Videoconferences to address market issues

Market Journal is a new monthly videoconference providing updates and analysis of grain markets; information on marketing opportunities; and alternative risk management strategies.

The 60- to 90-minute videoconferences will include updates on weather conditions, grain merchandiser's perspectives on current grain industry issues; a financial tip each month; and monthly entries in the marketing journal.

Extension offices across the state will serve as downlink sites and offer discussion groups. Upcoming dates are: June 19, July 17, Aug. 21, Sept. 18, Oct. 16, and Nov. 20. For more information call (800) 755-7765.

Market Journal is presented by Cooperative Extension, Nebraska Feed and Grain Assn., Nebraska Corn and Soybean boards, and USDA's Risk Management Agency.

Wheat tours
(Continued from page 103)

June 27, 6:30 p.m. MT — Deuel County. Located on the Milt Peterson Farm. 6 east of Chappell to junction 30 & 27, half mile north, on east side of road. Contact: Extension Educator Mike Daharsh at (308) 772-3311.

June 28, 8:30 a.m.-3 p.m. MT — High Plains Ag Lab. Located 10 miles south of Gurley or 6 miles north of Sidney on US 385, then turn west at Huntsman Elevator, 2 1/2 miles west, 1/2 mile north and 1/2 mile east. Contact: Tom Nightingale, Lab farm manager, at (308) 254-3918.

June 28, 4 p.m. MT — Cheyenne County Irrigated. Located on Tom Maas Farm, 7 miles north of Potter, 3 east, 2 north, and 1.3 east, north side of road. From Gurley: 12 miles west on Road 46 to Road 89, 2 miles north to Road 50, 1.7 miles west. Contact: Extension Educator Karen DeBoer at (308) 254-4455.

June 28, 7 p.m. MT — Kimball County — No-till. Located on the Chris Bogert Farm. 3 miles north of Dix to Road 40, 1.5 miles east, on south side of road. Contact: Extension Educator Ray Weed at (308) 235-3122.

July 5, 1 p.m. MT — Dawes County. Located on the Al Rasmussen Farm. At junction 385 & 20 west of Chadron, go 1.5 miles north to Rasmussen sign, then 1/2 mile west, on north side of road. Contact: Don Huls at (308) 432-3373.

July 5, 6 p.m. MT — Box Butte. Located on the Diamond Hill Farms, 2 miles north of Alliance on Highway 2 to Madison, 1.3 west to CR 63,.5 mile north and .6 mile west. Contact: Extension educator Tony Merrigan at (308) 762-5616.

Adjacent state wheat plot tours

June 14, 8 a.m. MT — Akron, Colo. Location: Central Great Plains Research Station, Washington County, Colo, 4 miles east of town on Hwy 34, 1/4 mile south, 1/4 mile west.
NU weed tour itinerary revised

The itinerary for the 2000 Nebraska Weed Tour is being revised. The North Platte stop, previously scheduled for 9 a.m. Wednesday, June 21, is being dropped due to dry conditions.

The weed tour, which will begin at the Haskell Ag Lab near Concord in northeast Nebraska on June 19, provides a hands-on look at University research herbicide trials. While most participants are from the agricultural chemical industry, the tour is free and open to the public. Individuals may attend all or part of it. The itinerary is:

Monday — June 19
1 p.m., Concord, Haskell Agricultural Laboratory

Tuesday — June 20
9 a.m., Lincoln, Havelock Research Farm
3 p.m. Clay Center, South Central Research and Extension Center

Wednesday — June 21
3 p.m. (MDT), Sidney, High Plains Agricultural Laboratory

Thursday — June 22
8:30 a.m. (MDT), Scottsbluff, Panhandle Research and Extension Center

Alex Martin
Extension Weed Scientist

Hay Hotline:
(800) 422-6692

Due to developing drought conditions, the Nebraska Department of Agriculture has established a hay hotline to connect producers needing forage with available supplies. The toll-free number is (800) 422-6692. Producers who have hay, alfalfa, or other types of forage to sell or donate may call to be included in a database of available supplies.

Farm tours spotlight diversity of Nebraska

The following farm tours are being sponsored this June by the Nebraska Sustainable Agriculture Society. They are a good opportunity for producers, Extension faculty, students and others to learn more about the diversity of agricultural enterprises in Nebraska. Additional tours are scheduled for July.

June 15, 7:30 p.m. near Bloomfield. Kelly and Cindy Bruns will host a grazing tour. Kelly recently built a New Zealand style milk parlor where he milks 100 head of Jersey cattle. He is now in the process of developing a grazing system using high tensile fencing and a variety of forages. Location: from the cemetery at the West edge of Bloomfield go 5 miles west, one mile north and a short 1/2 mile back east. The barn is on the south side of road. For more information call Kelly Bruns at 402-373-4906.

June 18, 1 p.m. near Pierce. The Northeast Nebraska Farmers and Main Bow Meats IMPACT groups are planning a farm tour at the Gerald and Betty Henzler farm. It will include a pasture tour, taste samples of grass-fed beef and buffalo as well as pork (not a meal). The event will conclude with an ice cream social at 4 p.m. For more information call Marvin DeBlauw at 402-254-3429 or Gerald Henzler at 402-329-4277.

Location: From intersection of U.S. Hwy 81 and 98 (west of Wayne), go one mile west and 1/8 mile north. The Henzlers are on the east side of the road.

June 21, 5 p.m. near York. John and Susie Ellis of York will host a Summer Solstice Celebration at Libby Creek Farm. This is a great chance to learn about Community Supported Agriculture (CSA) and innovative methods of organic vegetable production. The event will include a farm tour, hay-ride and picnic.

Location: From US 81 and I-80 York interchange, go 1/2 mile south to Hymark Texaco, four miles west to the farm on the north side of the road. Call 402-362-2630 for more information.

June 24, 3 p.m. near Lincoln. Kevin and Charuth Loth will host the Haymarket Specialty Crops Field Day at Shadowbrook Farm near Lincoln. Tour a certified organic specialty vegetable grower’s farm, see a variety of heirlooms, vegetables, and free-range turkeys. Visit the Loth’s country store. A picnic at 5 p.m. will feature locally grown vegetables. Bring your own eating utensils. The event will include music, a petting zoo, kids’ activities, corn shelling, informational displays, and food demonstrations by Open Harvest. Bring your dancing shoes and come for a relaxing fun-filled day with the Loths. Call Charuth Loth at 402-420-2283 or Billene at 402-435-7496 or e-mail: lincolnhaymarket@alltel.net for more information.

Location: Take Hwy 77 south out of Lincoln to the Denton Road. Turn west (right) on Denton Road and go for two miles. The Loth’s farm is on the south side of the road.

Bob Wright
Extension Entomologist
South Central REC
Controlling Canada thistle and leafy spurge

Canada thistle and leafy spurge are two noxious weed species that are increasing in Nebraska. Noxious weeds pose a special problem because they are exotic invaders. While poor land management is usually the cause for many weeds, exotic invaders can enter and proliferate a given site regardless of management. Understanding the biology of each species, or at least their life cycles, will aid in their control.

**Canada thistle Cirsium arvense**

Canada thistle is an aggressive perennial that has been classified as a noxious weed in Nebraska since 1873. It is estimated to infest well over 500,000 acres in northern and western Nebraska. Its extensive root system and production of over 5000 seeds per plant make it very difficult to control. Much like leafy spurge, nearly all parts of the root system can produce buds that can eventually form new vegetative shoots.

Canada thistle is identified by shallow lobed leaves with short spines on the margins and a greenish color on both sides, often lighter on the lower side. The flower heads are small and numerous compared to other thistles and the roots are extensive. Because the plant is dioecious (staminate and pistillate flowers found on different plants), it may be found in large patches that do not produce seed.

Several herbicides can provide control of Canada thistle. Banvel at 1 qt/A in the fall will provide 85-90% control. Better control is available with either Roundup at 2 qt/a, Curtail 2-4 pt/a, Stinger at 1.3 pt/a, or Tordon at 1-2 pt/a. Because Canada thistle is a perennial, June and late September to early October are the best times for herbicide applications. One application will not provide sufficient control; plants surviving the initial treatment will reproduce and new seedlings will arise from seed in the soil. A good Canada thistle control program will call for spring and fall applications for two or three years.

**Leafy Spurge Euphorbia esula**

The noxious week leafy spurge has quickly become one of the most problematic weeds in Nebraska. Its extensive root system, tendency to quickly spread and survive considerable vegetative damage, along with its extended flowering season, make it one of the most difficult weeds to control. This deep-rooted perennial will require a well-planned management strategy to obtain control.

Fall herbicide applications provide the best control. In pastures, effective control can be had with Tordon at 2-4 qt/A, 2,4-D at 1 qt/A + Tordon at 1 pt/A, 2,4-D at 4 qt/A or Roundup + 2,4-D at 1 qt/A each. Control will require multiple applications of all but high rates of Tordon. In non-grazed sites, Plateau at 8 ounces has been very effective in controlling leafy spurge when applied in the fall. Chemical applications should be based on the infestation. Small isolated patches are best controlled with either Plateau or Tordon. Larger infestations make several applications of 2,4-D more feasible due to treatment cost.

Plateau received labeling for pasture use where leafy spurge is the target weed. Best results occur with an 8 oz/a application in the fall in a spray solution containing methylated seed oil (1.5 pint/acre) as an adjuvant. Plateau offers selective control without injury to other beneficial herbaceous plants such as legumes and other native plants. When treating areas occupied by Hayden penstemon, Penstemon haydenii, and Western prairie fringed prairie orchid, Plantanthera praeculta, a 20 foot set-back buffer for ground application and a 300-foot buffer for aerial applications must be observed.

Jeff Rawlinson, formerly Extension Weed Science
Alex Martin, Extension Weed Specialist

### Response of Canada thistle to herbicides

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate per acre</th>
<th>Timing</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ally</td>
<td>0.1 oz</td>
<td>June/Sept</td>
<td>Small grain</td>
</tr>
<tr>
<td>Banvel/Clarity</td>
<td>1-2 qt</td>
<td>June/Sept</td>
<td>Grassland/fallow</td>
</tr>
<tr>
<td>Curtail</td>
<td>2-4 pt</td>
<td>June/Sept</td>
<td>Small grain, fallow, grassland</td>
</tr>
<tr>
<td>Escort/Telar</td>
<td>1.0 oz</td>
<td>June/Sept</td>
<td>Non cropland</td>
</tr>
<tr>
<td>Grazon P&amp;D</td>
<td>4 pt</td>
<td>June/Sept</td>
<td>Grassland/non cropland</td>
</tr>
<tr>
<td>Roundup Ultra</td>
<td>3 qt</td>
<td>June/September</td>
<td>Non cropland/fallow</td>
</tr>
<tr>
<td>Stinger</td>
<td>1.3 pt</td>
<td>June/September</td>
<td>Corn/sugarbeet</td>
</tr>
<tr>
<td>Tordon 22K</td>
<td>1 qt</td>
<td>June/September</td>
<td>Grassland/non cropland</td>
</tr>
</tbody>
</table>

### Response of leafy spurge to herbicides

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate per acre</th>
<th>Timing</th>
<th>Percent control 1 year after treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4-D Ester</td>
<td>2 qt</td>
<td>Spring (bud stage)</td>
<td>10</td>
</tr>
<tr>
<td>2,4-D + Tordon</td>
<td>1 qt + 1pt</td>
<td>Spring (bud stage)</td>
<td>50</td>
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<tr>
<td>Plateau</td>
<td>8 oz</td>
<td>Fall</td>
<td>80</td>
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<tr>
<td>Tordon 22K</td>
<td>2-4 qt</td>
<td>Fall/spring</td>
<td>90</td>
</tr>
<tr>
<td>Roundup Ultra + 2,4-D Amine</td>
<td>32 oz + 1 qt</td>
<td>Fall/spring</td>
<td>10</td>
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