

2004

Crop Watch No. 2004-18, August 13, 2004

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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

UNIVERSITY OF
Nebraska
Lincoln

No. 2004-18, August 13, 2004

What's the corn yield potential for 2004?

The answer may be just a click away

Accurate forecasting of expected yields and total corn production is important to both producers and the corn industry. Variations in weather conditions, soils, and the availability of irrigation water can cause yields to fluctuate significantly from one year to the next, making it difficult to develop timely and reliable yield predictions and make mid-season adjustments.

The Hybrid-Maize Simulation Model — a new software product developed by the UNL Department of Agronomy and Horticulture — can be used at different stages of the growing season to predict yield potential. These predictions can be used to aid in monitoring crops, making in-season adjustments to crop management, evaluating the risks and effects of drought, and

planning marketing strategies.

To use Hybrid-Maize, real-time weather data for a given site are downloaded from the Automated Weather Data Network (AWDN) of the High Plains Regional Climate Center (HPRCC) at UNL (<http://www.hprcc.unl.edu>). For practical purposes, in-season updates can be

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Continue active soybean aphid watch

It is critical that farmers and consultants monitor soybean aphid populations, particularly during the next two weeks. Soybean aphids can be found in most Nebraska soybean fields and in every field in northeast Nebraska. Many fields range from 20-50 aphids per plant, but quite a few have more. My personal high count so far is about 525 aphids per plant (field average) in Dodge County. Temperatures are expected to be relatively mild for the next

week, so I do not expect aphid populations to decline unless natural enemies (e.g. lady beetles and parasitic wasps) get a good foothold. Try to scout fields at least twice a week.

The threshold for soybean from late vegetative stages up through R4 (full pod) is 250 aphids per plant (field average) and populations are increasing. Thresholds for R5-R6 (beginning seed to full seed) have yet to be determined, but are likely in the 500-1000 aphids per plant range. Yield response to treatment has been documented during R5 and early R6, but not as consistently as when treatment occurs during R4 or earlier. Treatment after R6 has not been found to increase yields.

Some economic thresholds being circulated for soybean aphid are much lower than what we recommend. We feel that the threshold of 250 aphids per plant with increasing populations is much more realistic and still gives growers about a week to spray the field before economic

See *Field Updates* on page 164 for county reports of insect activity.

damage occurs. This also allows time for weather and natural enemies to help slow the population increase. The last two seasons populations naturally started decreasing in mid to late August.

The lower threshold numbers being used by some are based on some preliminary data. We feel these thresholds are not realistic and require more extensive research. Therefore, we strongly discourage treating for soybean aphids until the 250 per plant threshold is reached and populations are increasing.

Soybean populations are expected to naturally decline sometime in late August to early September, but the timing of the decline is not known, so stay vigilant.

Tom Hunt, Extension Entomologist
Haskell Ag Lab, NEREC
Keith Jarvi
Extension IPM, NEREC

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UNIVERSITY OF NEBRASKA, COOPERATING WITH COUNTIES AND THE U.S. DEPARTMENT OF AGRICULTURE

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Ag briefs

Gary Zoubek, Extension Educator based in York County: Soybean aphids have been showing up in many soybean fields the past week. Numbers have ranged from very few to over 1,500 per plant in various fields. Several fields have been treated and many are being monitored closely. We received a little rain Saturday night, but the dryland fields need more rain.

F. John Hay, Extension Educator based in Pierce, Madison and Wayne counties: Rain is scarce. We received 3/10 inch Saturday night, but not enough to bring back the dryland corn on sand. Pivot corners and dryland fields planted to sandy soils are hurting for moisture, yet heavier textured fields are still holding up and looking good. Pivots have been

running steadily for the past couple weeks on both corn and beans. Soybean aphids exist in most all fields in Madison, Wayne and Pierce counties with numbers generally low at 1-20 aphids per plant, although some areas have had larger numbers of 100-300 aphids per plant. I've heard that five to six fields have already been sprayed for aphids.

Andy Christiansen, Extension Educator based in Hamilton County: A large number of acres in this area have been treated for soybean aphid. Many acres are being treated before reaching the threshold of 250 aphids per plant; I have heard reports of some fields with several hundred aphids per plant. I've also received reports of spider mites in some fields, but am not aware of any being treated. Late corn needs to be scouted for European corn borer this week.

Jim Peterson, Extension Educator based in Washington County: Crops here are in excellent condition, but slightly behind normal in development. Timely rains have really benefitted the crop with the possible exception of alfalfa, where the rain has complicated harvest. Many farmers are finding soybean

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Irrigation water flow improves

Irrigators in the North Platte Valley of western Nebraska received a bit of good news from the irrigation districts last week. Water supplies are expected to last a little longer than what was earlier projected, primarily due to two factors. First, there has been some rain which helped increase the flow of water into the system. Second, canal delivery efficiencies have been better this year. Canals normally operate in the 50-65% efficiency range, but this year one of the big canals peaked at 72%. The reason for the improvement is not really known, but this definitely allowed diversions to be limited. Current plans call for water to run out around August 20-25 for most districts.

Crop condition in the region varies. Crops that were severely stressed early in the season are having a hard time developing properly. An early frost may hit before some of these crops mature. This demonstrates the importance of having adequate soil water early in the plant growth cycle. Those crops that received water and were allowed to develop normally early in the season, should be able to reach maturity, given a little bit of added precipitation during late August and September.

Some valley fields can be irrigated from irrigation wells, while a significant amount of the 400,000 acres in the valley will have to rely

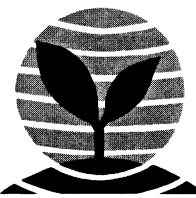
on mother nature for finishing out the crop.

North and south in the Panhandle crops generally show a little more uniformity in their growth pattern. This is partially due to a little higher frequency of rain during the spring and summer. Unfortunately, hail was a part of some summer storms. Areas reporting hail in the last few weeks include Sidney, Kimball, and areas around Alliance, Bridgeport and Minatare. Although the areas reporting hail are somewhat localized, the degree of damage has been significant.

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

Hybrid-Maize *(Continued from page 163)*

downloaded about once a week, using the closest weather station. Hybrid-Maize users provide field-specific information on date of planting, hybrid grown (GDD from emergence to maturity), plant population, irrigation dates and amounts, and soil type. Users also can edit the weather data file by adding their own location-specific rainfall records. Based on this information, Hybrid-Maize simulates corn growth until the date during the growing season on which a forecast is to be made.

For predicting the final yield from that point forward to crop maturity, the model uses long-term weather records for that site to simulate all possible growth scenarios for the remainder of the growing season. Because the forecasts are based on historical weather data that include wet and dry years as well as favorable and nonfavorable growing seasons, the predictions from this forecasting system include the full range of

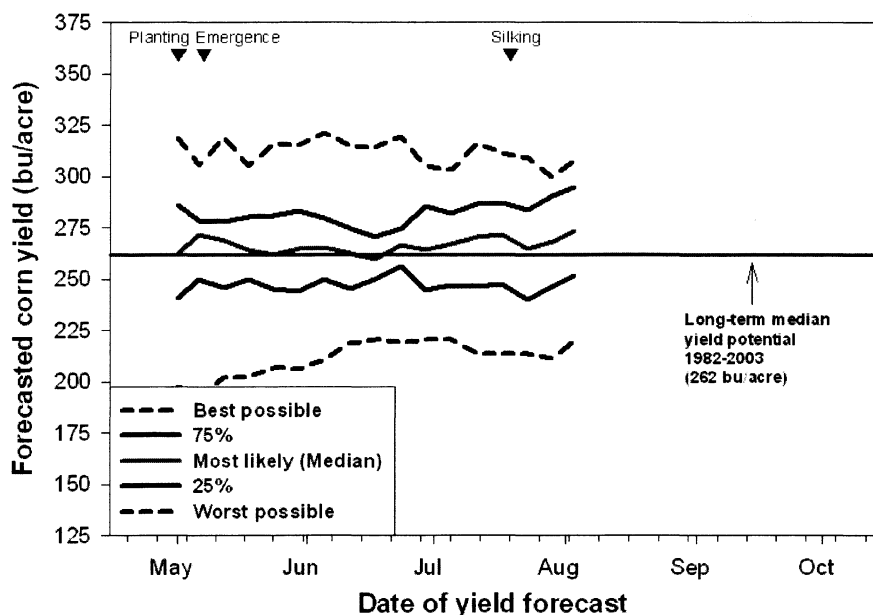


Figure 1. Time course of real-time predictions of corn yield potential at Clay Center from May 1 to August 3, 2004. Actual and long-term weather records were used to do yield forecasts at weekly intervals. The prediction assumes that irrigated corn is grown under optimal conditions, i.e., with full irrigation and no limitations due to nutrients or pests. A corn hybrid with GDD 2700 was planted on May 1.

possible yield outcomes, the most likely yield range (within 25-75% of all scenarios) and a median predicted yield. Those values can then be compared with the long-term median and the previous year. Because the model is sensitive to temperature and water availability, including rainfall and irrigation, predictions improve as the season

progresses and more of the record can be based on actual weather data.

The Hybrid-Maize User Manual provides a detailed description of how to make in-season yield forecasts (http://www.hybridmaize.unl.edu/Assets/UserManual/Section_3.4.pdf). Figure 1 shows an

(Continued on page 166)

Take it for a spin

A trial version of the **Hybrid-Maize** model software is available at <http://www.hybridmaize.unl.edu>

It has all functions of the full version, but works only with the two weather data files included. The Web site also contains some updated publications and presentations related to the hybrid-maize modeling software at <http://www.hybridmaize.unl.edu/Publications.htm>). See page 166 for information on ordering CD9 *Hybrid Maize* and the companion CD10 *Expanded Weather Database for Hybrid-Maize*, which has weather data for many more sites in 10 western Cornbelt states.

Table 1. Yield in bushels per acre predicted for specific Nebraska sites for 2004 and simulated for 2003 using the same settings for each site.

Site	GDD	Long-term median	2003	2004 yield forecast		
				Median	75%	25%
Alliance	2200	203	197	214	233	189
Beatrice	2700	246	240	254	264	237
Champion	2600	249	244	280	300	250
Clay Center	2700	262	310	273	295	252
Concord	2520	255	270	260	287	253
Lexington	2700	266	236	272	290	248
McCook	2650	246	217	248	270	225
Mead	2700	253	260	265	276	250
North Platte	2550	246	238	266	274	239
O'Neil	2400	220	217	256	269	226
Shelton	2700	272	287	281	298	277

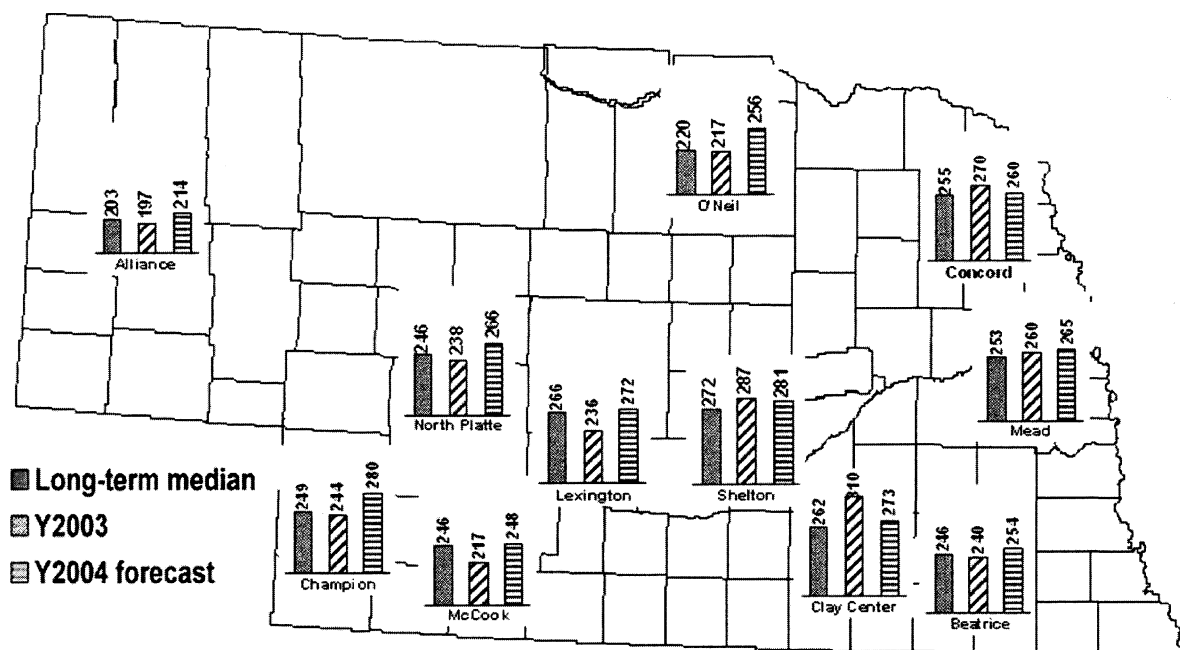


Figure 2. Predicted corn yield potential in 2004 for key corn growing areas in Nebraska. Actual and long-term weather records for each site were used to make yield forecasts as of August 3, 2004. Those predictions are compared with the 2003 simulation and the long-term median.

example of in-season predictions of corn yield potential at Clay Center for the 2004 growing season. We have assumed an average planting date of May 1, a hybrid that requires 2700 GDD from emergence to maturity (about a 112-day relative maturity), and a final stand of 30,000 plants per acre. Silking was predicted to occur on July 19 and the

crop is currently approaching milk stage (R3). Long-term weather records (1982 to 2003) suggest an average yield potential of 262 bu/ac for these planting conditions. So far, weather was favorable and growth in the 2004 growing season has been slightly above the long-term median. The latest yield forecast suggests a final median yield of 272 bu/ac, with a most likely range (from

25-75% of all forecasts made) of 252 to 295 bu/ac.

Experience from our research studies suggest that the median yield forecasted at this growth stage is often very close to the actual yield; however, these numbers also mean that there is still a 25% chance that the yield potential is less than 252 bu/ac and a 25% chance that it is more than 295 bu/ac. The latter will be the case if cooler weather prevails during grain fill. It is important to continue monitoring the crop to make sure that sufficient water is supplied during grain fill. Note, however, that this yield forecast represents the yield potential, which is usually higher than actual field level yield. Other factors, such as pests, soil and management practices, also can affect yields.

Figure 2 shows in-season predictions of corn yield potential for key locations in Nebraska, as of August 3, 2004. For all locations, we have assumed an average planting date of May 1 and a population of 30,000 plants per acre. Furthermore, for each location we have assumed that

On-line sales, downloads

On-line, credit card ordering for several Cooperative Extension products is now available from the American Distance Education Consortium (ADEC) Estore at estore.adec.edu. This on-line option is in addition to Extension's more established "store fronts" for its information products: local Cooperative Extension offices, the Cooperative Extension Publications Warehouse and the publications Web site at <http://ianrpubs.unl.edu/>

The ADEC Estore offers UNL software for sale by download only or for download or CD. UNL products on the ADEC Estore site are:

- ◆ *Hybrid-Maize: A Simulation Model for Corn Growth and Yield* (\$35) CD 9, available in both a downloadable and CD version
- ◆ *Expanded Weather Database for Hybrid-Maize* (CD 10), only available in a downloadable format.
- ◆ *Integrated Turfgrass Management for the Northern Great Plains* (\$30), EC1557.
- ◆ *Nutrient Management for Agronomic Crops in Nebraska* (\$30), EC01-155; and
- ◆ *Sugarbeet Production Guide* (\$30), EC01-156.

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Predicting yields

(Continued from page 166)

hybrids with a suitable maturity rating are grown, ranging from 2200 GDD at Alliance to 2700 GDD in south central and southeast Nebraska (Table 1). All predictions assume that irrigated corn is grown under optimal conditions, i.e., with full irrigation and no nutrient or pest problems.

As can be seen from this, corn yield potential is high in 2004 compared to last year as well as compared to the long-term median. At most sites, we can expect that the yield potential is about 10 to 30 bu/ac higher than in a normal year and also higher than last year. Actual yields will obviously be less and differ more widely due to field-specific differences in planting date, hybrid, plant population, soil, irrigation, nutrient supply, and other crop management factors. Nevertheless, the conditions are excellent for a bumper corn harvest, provided that August stays relatively cool.

Haishun Yang, UNL Research Assistant Professor, Department of Agronomy & Horticulture
Achim Dobermann
Extension Soil Fertility/Nutrient Management Specialist

Ordering Hybrid-Maize

For more information about **Hybrid-Maize** (Cooperative Extension CD 9, \$35), visit the **CropWatch** Web site at <http://cropwatch.unl.edu> or the **Hybrid-Maize** site at <http://www.hybridmaize.unl.edu>. Additional weather data is available on Cooperative Extension CD 10, *Expanded Weather Data* (\$25). It includes 137 sites in 10 states.

To order these products, contact your local Extension educator or visit the ADEC Estore at estore.adec.edu to order online (see page 166).

Rootworm injury reported in first-year corn in NE Nebraska

This summer several people in northeast Nebraska have reported corn rootworm feeding and injury in corn after soybeans. Although we have not confirmed this, it is likely due to extended diapause in northern corn rootworm eggs. This has been seen in the past in Nebraska. Eggs with the extended diapause trait can survive for two winters in the soil; in corn-soybean-corn rotation this results in injury in corn after soybeans.

Reports indicate that fields in Dodge, Colfax, Saunders, Butler and Washington counties have this injury. Lance Meinke, UNL professor of entomology, also reports seeing northern corn rootworm emergence from plots of corn after soybeans in a study at the ARDC near Mead. (His study was designed to measure emergence of western corn rootworms from plants artificially infested with eggs.)

Like western corn rootworms, northern corn rootworm numbers vary from year to year due to winter weather conditions and cropping patterns in a region, among other factors. Relatively mild winters the last several years may have allowed northern corn rootworms to increase in numbers, and areas using a corn-soybean-corn rotation may have favored the extended diapause trait.

If you suspect that you have rotated corn fields with injury from rootworm larval feeding, it is important to dig a few roots to confirm that the damage is caused by rootworms. Not all lodging or leaning is necessarily due to rootworm injury. Rootworm feeding injury causes root pruning; when severe, the equivalent of one or more nodes of roots may be pruned back close to the stalk. It is important to fully wash the roots to evaluate damage. At this time the plants may have recovered somewhat from injury by growing new

roots which may hide the old injury behind them.

Root damage from rootworm feeding can be rated using the Iowa 1-6 injury rating system (see NebGuide G92-1108, *Evaluating Corn Rootworm Soil Insecticide Performance*). Dig at least 10 randomly selected plants from several areas of a field. Leave a 9-inch cube of soil surrounding the root system, wash the roots to remove soil and rate each plant for injury using the rating scale.

The relationship between root injury rating and yield loss is complex, but usually a root injury rating of 3 or more on the 1-6 scale is needed to cause economic yield loss. The corn plant has the capacity to regrow roots and compensate for some early season injury, especially if soil moisture and fertility are adequate during the regrowth period. Several weeks have passed between the end of rootworm injury and the time of root rating, and new root growth may hide the injury. Examine roots carefully to accurately rate them.

An alternative method to evaluate root injury has been developed at Iowa State University and is gaining acceptance. It is based on a 0-3 scale. This system was developed to avoid some of the perceived problems with the traditional 1-6 scale, including that the 1-6 scale is not linear (e.g., a rating of 4 does not represent twice as much injury as a rating of 2), and that the 1-6 scale is difficult to explain. The 0-3 scale is linear and the meaning of the injury values are easy to understand. Another potential advantage to the 0-3 scale is that it is more sensitive in detecting differences at low levels of injury compared to the 1-6 scale. This is particularly important in some research applications.

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Second generation ECBs in flight

Second generation European corn borers are flying and scouting should be underway in non-Bt corn. Numbers across the state appear to be low but the flight has not ended yet. Following is a review of thresholds and management recommendations for second generation European corn borer.

Fields that have green silks and are shedding pollen during the peak period of moth flight are most susceptible to second generation infestation. Scout fields regularly, at least once every three to five days, especially during the early half of the moth flight period. Select a minimum of 50 plants per field, choosing plants from several different parts of the field. Examine the underside of leaves for white borer egg masses. These masses, usually found on leaves in the middle third of the plant (frequently near the midrib), normally hatch in about five days. Each egg develops a black spot just before hatching.

Application timing is critical to reasonable control. Best control (approximately 50-70%, depending on timing, application method and

product choice) is realized when application is timed to first significant egg hatch and when young larvae are still located in the leaf axils. Larvae that have bored behind the leaf axils, into the sheath or are in or on the ear are not likely to be controlled. As the plant approaches blister stage and beyond, potential economic benefits of an insecticide application rapidly decline.

A worksheet has been developed to help determine whether treatment of second generation European corn borers in corn is economical. This worksheet is available below and an online interactive version is available at www.ianr.unl.edu/forms/forms.skp/ecb_2nd.html

For this worksheet you'll need:

- Average number of egg masses per plant in field
- Crop stage
- Expected yield
- Expected value of corn
- Expected percent control with insecticide
- Control cost (product plus application costs)

This worksheet may be useful in closely evaluating the many factors influencing the cost/benefit relationships involved in treating second generation European corn borers. Average values are suggested in the worksheet and may need to be modified in certain situations:

Borer survival is suggested to be three borers per egg mass. On average, European corn borer egg masses contain 20 eggs, although this may vary from 10 to 40. Three borers per 20 eggs equals a 15% survival rate. Larval survival will vary with weather conditions and field type (dry land versus irrigated). In irrigated corn, larval survival is likely to be 20% or more, but in dryland corn it's likely to be 10% or less. Exposure to hot, dry weather greatly decreases egg survival.

Yield loss per borer is suggested to be 4% per borer for infestations before silks turn brown, and 3% per borer after silks turn brown, but before blister stage. These values only account for physiological yield

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Management worksheet for second generation European corn borers

_____ Number of egg masses per plant x 3 borers per egg mass* = _____ borers per plant

_____ Borers per plant x 4% yield loss per borer** = _____ percent yield loss

_____ Percent yield loss x _____ expected yield (bu per acre) = _____ bu per acre loss

_____ Bushels per acre loss x \$ _____ sale price per bu = \$ _____ loss per acre

\$ _____ loss per acre x 70% control*** = \$ _____ preventable loss per acre

\$ _____ preventable loss per acre

- \$ _____ cost of control (product + application costs)

= \$ _____ profit (+) or loss (-) per acre if treatment is applied

If preventable loss exceeds cost of control, insecticide treatment is likely to result in economic benefit.

* Assumes survival rate of three borers per egg mass; may vary with weather and egg mass size.

** Use 3 percent loss per borer per plant if infestation occurs after silks are brown. The potential economic benefits of treatments decline rapidly if infestations occur after the corn reaches the blister stage.

*** 70% is an average, you may use another value if desired.

ECB second generation

(Continued from page 168)

loss (reduced yield from corn borer damage to water and nutrient uptake through the stalk) and do not consider the potential for yield loss due to stalk breakage or ear drop.

Percent control with insecticides is suggested to be equal to 70%. This is a good average value for second generation European corn borer control, although if you have data to suggest higher or lower control levels under your conditions, change this value.

The best control that can be achieved usually will prevent much of the stalk and leaf sheath tunneling, but will not necessarily prevent invasion of the ear tip. This is especially true if the borer flight period is extended or a partial third generation occurs. Stalk protection is critical for the plant to fully develop the ear. While late worms that attack the ear tip do reduce grain quality, they do not reduce yields as seriously as borers that tunnel in stalks. Early harvest and selection of a corn variety that has good ear retention should minimize ear drop.

Generally, liquid and granular formulations of the same insecticide are equally effective against second generation European corn borer larvae. However, if other insects (except spider mites) are present and/or European corn borer moth numbers are high, liquid formulations are preferred over granules because of their broader spectrum of activity and the added advantage of obtaining some moth control. If spider mites are present, Capture is probably your best choice. Lorsban, PennCap M, Pounce (permethrin), Asana, Warrior, Capture, Mustang Max, and Baythroid will all control European corn borers.

Keith Jarvi
Extension IPM
Northeast REC
Tom Hunt
Extension Entomologist
Haskell Ag Lab, NEREC

Spider mite season returns

We are reaching the time of year when spider mites may start damaging corn and soybeans. While we haven't received reports of any economically damaging infestations, current and projected weather conditions favor an increase in spider mite populations. Producers should be scouting fields now for this pest.

Two species of spider mites, the Banks grass mite and twospotted spider mite, commonly feed on Nebraska corn. Banks grass mites feed almost exclusively on grasses, including corn and sorghum. Twospotted spider mites feed on many grasses, as well as soybeans, fruit trees and a variety of vegetables and ornamental plants. These two species are somewhat similar in appearance, but differ in several biological characteristics and in their susceptibility to pesticides.

Banks grass mites usually appear earlier in the season, feed mostly on the lower leaves of the corn plant, and in Nebraska are moderately susceptible to many commonly used miticides. On the other hand, twospotted spider mites tend to appear in mid to late season, increase rapidly, feed over the entire plant, and often are not consistently controlled by available pesticides. The most useful characteristics for

identification are the overall shape of the body and the pattern of pigmentation spots on the back. In Banks grass mites the pigments accumulate along both edges of the body near the rear and along the sides of the body. In twospotted spider mites, the pigments accumulate along the sides of the body in two distinct spots and do not extend back more than halfway on the body.

Mites damage crops by piercing plant cells with their mouthparts and sucking the plant juices. The first evidence of mite feeding, which can usually be seen on the top of the leaf, is a yellow or whitish spotting of the leaf tissues in areas where the mites are feeding on the lower leaf surface. Because many other things can cause similar discoloration, it is important to check leaves closely to make sure mites are actually causing the damage. Leaf discoloration caused by mite feeding can be easily identified by checking the undersurface of leaves for the presence of mites, eggs and webbing.

For management recommendations, visit the *CropWatch* Web site at cropwatch.unl.edu or contact your local extension educator.

Keith Jarvi
Extension IPM, Haskell Ag Lab

Corn rootworm (Continued from page 167)

In this scale 0 = no damage, 1 = one complete root node is pruned (as defined above), 2 = two complete root nodes are pruned, and 3 = 3 root nodes are pruned. Fractional ratings are possible, e.g. 1.5 = equivalent of 1.5 root nodes pruned. A description of the 0-3 rating system is available on an Iowa State University Web site.

If you have a confirmed history of economic damage from northern corn rootworm feeding in corn after soybeans, a planting time rootworm

control may be warranted next year.

Additional information about northern and western corn rootworm biology and management is available from EC 1563, *Corn Rootworm Management*, available from your local Cooperative Extension office and on the Web at <http://ianrpubs.unl.edu/insects/ec1563.htm> and on the UNL Entomology website at <http://entomology.unl.edu/fldcrops/pestipm.htm>

Bob Wright
Extension Entomologist

Field day features variety trials, on-farm producer research

On-farm producer research projects and a corn variety trial will be featured at this year's Greater Quad Counties On-farm Research Group Field Day August 25. The program will begin with a free lunch at noon at the Troy Otte farm south-east of Grafton and conclude about 1:30 p.m.

Focus projects

One of the featured research projects is a study of green stem in soybeans. Green stem is a condition where the crop is mature with dry seed ready for harvest, but the stems are green, complicating combining. Extension Educator Jenny Fleer will discuss the screening study and possible role of bean pod mottle virus in green stem. Extension Educator Andrew Christiansen will address the cost of harvesting overly dry soybeans.

Another research project, being conducted on five farms in three counties, compares yields for varieties under normal and low populations. One of the comparison varieties is advertised as having prolific genetics which allow high production under low populations. Extension Educator Terry Hejny will discuss this research.

Several studies in recent years have addressed the role of nitrogen in soybean production, particularly

related to mid-season application and how to give proper credit for corn following beans. Extension Educator Gary Zoubek will provide an update on research and on-farm studies of these issues.

Roger Elmore, Extension cropping systems specialist, will address corn variety trial data and timely access of the data via the internet. The UNL south central off-station variety trial is on the Otte farm.

Dan Leininger of the Upper Big Blue Natural Resource District will provide an update on the NRD irrigation study south of York.

The Quad Counties On-farm Research Group was started in 1998 to provide producers an opportunity to test and demonstrate University of Nebraska recommendations in local "real field" situations. From fertilizer rates to irrigation costs and from planting speeds and dates to insecticide treatments, the trials let farmers assess results of tests in typical farm production situations, compare information, and improve production decisions.

Site directions

From the east edge of Grafton (on Highway 6), turn south on Road 7, travel south two miles and turn left on Road H and proceed one-half mile east.

From Clay Center on Highway 41 traveling east, turn left on Road 7 (Grafton road) and travel north five miles, turn right on Road H and proceed one-half mile east.

From Geneva on Highway 41 traveling west, turn right on Road 7 (Grafton road) and travel north five miles, turn right on Road H and proceed one-half mile east.

Contacts

For more information, contact one of the following Extension educators: Andrew Christiansen, 694-6174; Gary Zoubek, 362-5508; Jennifer Fleer, 762-3644; or Terry Hejny, 759-3712.

Ag briefs

(Continued from page 164)

aphids but generally numbers have not been great. There have been reports of some fields in northwest Washington County being sprayed.

Tom Dorn, Extension Educator based in Lancaster County: I continue to find soybean aphids in every soybean field I look at, but, (to my surprise given the cooler temperatures), aphid populations are about steady with last week. Beans are in late stage R4 to mid stage R5. I think we are nearing the point where treatment may not be warranted in most fields, given present aphid numbers and the growth stage. Corn is in the dough to hard dough stage. Dryland fields of beans, corn and grain sorghum are showing drought symptoms; we need rain soon to achieve the yield potential we have at present.

Duane Lienemann, Extension Educator based in Webster and Clay counties: I have not seen any soybean aphids in Webster County, but Jennifer Fleer, Extension Educator in Clay County, has found some there. I am seeing a lot of corn leaf aphids and some fields are thick with them. We're seeing minor levels of soybean leaf beetle activity. Of more concern is the lack of moisture at this critical juncture. Corn, beans and even some grain sorghum on pivot corners and turn rows are turning brown and dying.

Pastures seem to be in pretty good shape with fair grass growth; however, I have never seen so much common mullein. Several pastures in south central Nebraska and in particular in Webster and Franklin counties have countless numbers of this pest. With each plant able to produce more than 100,000 seeds and those seeds living 35-100 years in the soil, this could be a developing problem. Several farmers have not had much luck spraying the plant for control this late spring and summer and many are shredding the worst areas and think they will need to use Tordon this fall on those areas. There

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Glyphosate research

The next issue of *Crop Watch* will feature the second of two articles on the impact of glyphosate herbicide on glyphosate resistant soybeans. The first article, titled "Glyphosate use and soybean nodulation – is there a link?", was in the July 30 *Crop Watch*. Due to space limitations in this edition, the second article could not be included at this time.

August farm tours feature water-saving strategies

Following several years of dry weather and with water restrictions looming, getting the most from every inch of available water is a prime goal for many irrigators in southwest Nebraska.

To help them succeed, a University of Nebraska program, the Republican River Basin Irrigation Management Project, was initiated in one of the geographic areas hit hardest by recent lean water years.

The program's primary focus is to demonstrate research-based irrigation management strategies in farmer fields, providing "hands-on" practical information on how farmers and consultants can implement these practices locally.

For Steve Melvin, program coordinator and extension educator based in Frontier County, a key goal of the program "is to make irrigation scheduling and management as easy as keeping fuel in the tank using the fuel gauge."

A series of Irrigation Demonstration Project producer farm tours will showcase corn irrigated using three strategies — fully watered, water miser, and deficit irrigation. Program presentations also will address 15 water-conserving ideas, how time of application and amount of water applied affects crop yield, and yield affects of skip-row planted corn.

Fully watered, the traditional best management practice irrigation management strategy focuses on keeping soil-water at a high enough level to prevent moisture stress from being a yield-limiting factor, said Melvin. The goal of the strategy is to maintain the plant available soil-water (in the active root zone) between field capacity and 50% depletion from planting through maturity.

"The **water miser** irrigation management strategy focuses on saving water during the less sensitive vegetative growth stages and fully watering during the critical reproductive growth stages," Melvin said.

Irrigation is delayed until about

two weeks before tassel emergence for corn unless soil-water becomes 70% depleted (in the active root zone). Once the crop reaches the reproductive growth stage the plant available soil-water (in the active root zone) is maintained in a range between field capacity and 40% depletion.

The **deficit irrigation management strategy** focuses on correctly timing the application of a restricted quantity of water both within the growing season as well as over a several year period.

"The intent is to stabilize yields between years by applying irrigation based on soil-water depletions. In wetter years less water will be applied and in drier years years, more water will be applied, with the average over the years equaling the quantity of water available," Melvin said.

Tour schedule

For more information on one of the irrigation tours listed below, contact your extension educator or Melvin. For more information about the Republican River Basin Irrigation Management Project, contact Melvin at (308) 367-4424 or smelvin2@unl.edu.

Holdrege — Tuesday, August 17, 6 p.m. Location: southeast edge of Holdrege. Go south on Lincoln St. (the street on the east side of the Extension Office/fairgrounds that goes under the railroad tracks as you turn south off of Highway 6 toward the east side of town) to 13th St., and turn east on 13th. The plot is one-half mile east on the north side.

Holbrook — Wednesday, August 18. Location: Program begins at 6 p.m. at the Holbrook City Park. Tour starts at 7 p.m. and is located from the east edge of Holbrook on Highway 6/34, one-half mile north on county road. The plot is on the west side of the road.

Benkelman — Tuesday, August 24, 7 p.m. (MT) Location: 12 miles north of Benkelman on Highway 61 or 14 miles south of the intersection of Highway 6 & 61 (turn at Alsbury sign) and four miles west to the intersection of 718 Rd 334 Ave. Turn south and the plot is one-fourth mile down, on the east side.

Madrid — Thursday, August 26, 7 p.m. (MT) Location: five miles west of Elsie or one-and-one-half miles east of Madrid on Highway 23 and three miles south to the intersection of 759 Rd 340 Ave. The plot is on the west side of the road.

No-till field day Aug. 20 at Holdrege

A Holdrege field day will feature information and tips on successfully transitioning to no-till crop production. *Management Strategies for Successful No-Till Production* will be held 9 a.m. to 1 p.m. Friday, August 20.

Tour topics will include: moisture savings with no-till, residue management and weed control, no-till planters, drills and attachments, and nutrient management. To attend the field day, from Holdrege on Highway 183 go two miles north

of the Country Club. The site is on the west side of the road.

Cooperators include: Tri-Basin Natural Resource District, Central Nebraska Public Power Irrigation District, Agri-Coop, Fairbanks International, McClymont Implementation, and Holdrege Area Chamber Ag Committee.

Lunch will be provided and no-till equipment will be on display for viewing during the lunch time. To register for the field day, call (308) 995-4222.

Events calendar

Information about these Cooperative Extension events is available in this and previous issues of *CropWatch* or on the Web at cropwatch.unl.edu

August

◆ **Soybean Cyst Nematode, Soybean Aphid, and Soybean Rust Field Day**, August 17, rural Nemaha

◆ **Irrigation Demonstration Tour**, August 17, Holdrege (p 171)

◆ **Crop Diagnostic Late Summer Clinic**, August 18, ARDC, near Mead

◆ **Irrigation Demonstration Tour**, August 18, Holbrook (p 171)

◆ **Soybean Cyst Nematode, Soybean Aphid, and Soybean Rust Field Day**, August 19, rural Ashland

◆ **Soybean Cyst Nematode, Soybean Aphid, and Soybean Rust Field Day**, August 20, rural Wayne

◆ **No-till Field Day**, August 20, near Holdrege (p 171)

◆ **Irrigation Demonstration Tour**, August 24, Benkelman (p 171)

◆ **Quad Counties On-farm Research Group Field Day**, August 25, near Grafton (p 170)

◆ **Precision Farming Clinic**, entry level, August 26, ARDC, near Mead

◆ **Irrigation Demonstration Tour**, August 26, Madrid (p 171)

September

◆ **Solution Days**, September 1, 2, near Goehner (p 172)

◆ **West Central Research and Extension Center Centennial Celebration**, September 17, North Platte

Solution Days offers 'how-to's' on increasing efficiency, decreasing costs

Finding practical solutions to everyday agronomic questions is the goal of Solution Days 2004. The full program, which will be presented on both Sept. 1 and 2 near Goehner will help producers, farm managers and seed dealers learn how to work smarter, not harder, said Keith Glewen, University of Nebraska Cooperative Extension educator.

"Increasing efficiency while decreasing expenses and minimizing losses are key in succeeding in today's ag marketplace," Glewen said. "This event will offer realistic solutions for meeting the challenges of higher crop yields while keeping production costs economical."

Topics include: solar radiation: timing and effects of radiation's changes on yields and disease, soybean yield response to soil moisture, new technologies, and drip and sprinkler irrigation technology.

Presenters include industry consultants and university specialists. The program is from 9 a.m. to 2:30 p.m. each day with in-field presentations.

Complimentary tickets are available from NK Brand Syngenta Seeds and the Nebraska Soybean Board. Participants are asked to bring their completed ticket panel to the field day to expedite registration.

To get to the Solution Days site at the Syngenta Seeds Research farm near Goehner, take exit 373 on Interstate 80 and go one-fourth mile south.

For more information, call Glewen at (800) 529-8030, the Nebraska Soybean Board at (800) 852-BEAN, a local Syngenta Seeds representative or call (402) 420-6664, or visit the Solution Days 2004 Web site at <http://ardc.unl.edu/solutiondays.htm>.

Solution Days 2004 is sponsored by NK Brand Syngenta Seeds, the Nebraska Soybean Board and Nebraska Cooperative Extension in the university's Institute of Agriculture and Natural Resources.

Sandi S. Alswager
IANR News

Ag briefs

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are also a lot of other weeds, including ironweed and ragweed, maturing in the overgrazed pastures.

I also have noted a lot of bare spots in pastures and more rodents than I can recall. We had some timely rains early that really helped, but we are in critical need now in all dryland and rangeland concerns. Irrigation has been constant for about 60 days and irrigators are becoming concerned about their fuel bills. This cool weather is nice but cause some problems for late planted or re-planted beans and corn as the growing season comes ever closer to an end.

Ralph Kulm, Extension Educator based in Holt County: Irrigated crops look good. Corn borer and western bean cutworm have not been serious problems and bean leaf beetles and soybean aphids have not yet become a problem. Crop development is a little behind normal, but this shouldn't be too much of a problem unless we have an early frost. Irrigators are glad to have some cooler weather so they can relax a little from the non-stop pumping needed during the hot weather. The outlook for dryland crops, however, is much different. They are in very bad condition and producers are starting to cut dryland corn for silage as much of it has very little chance of maturing further and is drying up. Third cutting alfalfa will be minimal to nonexistent without significant rainfall.