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Some mites moving into corn

Weather optimum for spider mite burst

There have been several reports of spider mites moving into field corn. Mite problems on tassel stage corn are usually associated with maturing wheat, drought or insecticide applications. As wheat harvest becomes complete and if dry weather continues, mite infestations can quickly become severe.

The twospotted spider mite and Banks grass mite are common to Nebraska corn fields. Although the Banks grass mite is slightly smaller than the twospotted spider mite, both species are about 1 mm long. Banks grass mites have a light green color throughout their bodies while the twospotted spider mites have two distinct dark green spots on the upper portion of the back. See the figure to distinguish between the two types of mites.

Spider mites damage plants by sucking liquid from the leaves. This feeding causes yellow or whitish spotting of the leaf. The mites are usually found in colonies on the underside of the leaves. After initial establishment, the mites form webbing and begin to lay eggs. Depending on the weather, these eggs hatch in three to four days. Spider mites have a great potential for increasing their numbers.

Fortunately, there are several beneficial organisms that feed on spider mites, including predatory mites, minute pirate bugs, Stethorus lady beetles, predatory thrips and a fungal disease. Without these natural enemies mite populations would quickly expand, resulting in a rapid decline in the host plant’s health.

Fields where an insecticide has been applied for control of Euro-

(Continued on page 135)
**Heat spell predicted to continue through the week**

The recent stretch of above normal temperatures and below normal precipitation has left rainfed grain crops in a precarious situation. Most of these crops are surviving on stored subsoil moisture from this spring and last fall. This moisture supply is being rapidly depleted with the lack of significant widespread rainfall.

Nebraska Agricultural Statistics producer reports indicate that topsoil and subsoil moisture in the short to very short category exceeds 50% of areal coverage of central, southwest, south central, and southeast Nebraska. With grain crops requiring 0.25 to 0.35 inches of water per day, these numbers will only get worse without widespread precipitation.

Most of the area south of a line from West Point to Ord to North Platte has received less than 60% of normal precipitation since April 1. Translated into inches of precipitation below normal, most of this region is running a deficit of 5-8 inches since April 1. Heavy precipitation from slow moving thunderstorms have been observed, but they have fallen on fairly small areas.

With the corn crop in the critical reproductive stage and the soybean crop rapidly approaching the pod filling stage, the weather trend during the next two weeks will have a large bearing on how productive rainfed yields will be within the region.

*(Continued on page 138)*

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**Briefs**

Gary Hall, Extension Educator in Phelps and Gosper counties: Help! Phelps and Gosper counties are very dry. We have less than 50% of our normal rainfall for the year. The pastures and ponds are dry and won't support the cattle. Producers are starting to use feed reserves they had planned to use for the winter.

We have heard that rain has fallen in other parts of the state. Our producers must move their cattle from the dry pastures to a place with water and grass to support them.

I am asking for your help for our cattle producers. Should you know of some good grass in your county would you please contact me immediately. We are in dire need of grass and would like to contact others who may have grass to spare. If you can provide assistance, contact Gary Hall at the Holdrege Extension Office at (308) 995-4222.

Dick Clark, Agricultural Economist at West Central Research and Extension Center at North Platte, responded: Contact the Sandhills Cattle Association in Valentine. They run a clearing house on cattle and grass. Call Rhonda Morris, manager, at 800-658-0551.

Drew Lyon: Extension Dryland Crops Specialist, Panhandle Research and Extension Center, Scottsbluff: An elevator owner here reported that some Cheyenne County wheat was averaging 30 to 35 bushels/acre. This is slightly below average here. I have heard nothing but good reports on test weights; all above 60 lb/bu. One farmer told me his test weights were all above 64 lb/bu.

Despite earlier predictions, I have not seen many fields where weeds were going to pose harvest problems. After a couple weeks of wet weather in late May and early June, we turned hot and dry and this may have limited weed development.
Spider mites (Continued from page 133)

Pean corn borer are particularly prone to outbreaks of spider mites. Several of the insecticides commonly used to control European corn borer also kill many organisms that feed on spider mites. Close attention should be paid to any corn field where a foliar insecticide was previously applied.

Farmers should carefully scout corn adjacent to wheat, brome grass or insecticide treated fields for spider mites. Fields should be checked for the presence of mites on individual leaves compared to the total number of green leaves. An estimate of the percentage of leaf area that is mite damaged should be determined. These percentages should be compared to the values in the mite economic injury level table associated with the appropriate control costs and crop value. If either of the sample values are less than the table value, control efforts are not likely to be profitable.

If the number of infested leaves and mite damage exceed the economic injury level, consider an insecticide application. The choice of insecticide will depend on the species of mite found. Twospotted spider mites are much more difficult to control than Banks grass mites. If twospotted spider mites or a combination of twospotted spider mites and Banks grass mites are found in the field, Comite, Comite II and Capture 2EC are the only miticides that will provide adequate control. If only Banks grass mites are found, many products such as Dimethoate 400, Capture 2EC, Comite or Comite II, will provide satisfactory control. In the Midwest, Capture 2EC is labeled for use in Kansas, Nebraska and Colorado. The mite infestations at this time may be isolated to the edge of the field. If this is the case, a spot treatment can provide effective control while reducing control costs. Since spider mites are found primarily on the undersides of leaves, they are difficult to control with low volume applications. Using three or more gallons of water per acre to carry miticides may increase effectiveness.

For more information on spider mite management, see NebGuide G93-1167, Spider Mite Management in Corn and Soybeans or the Department of Entomology’s home page on the World Wide Web (http://ianrwww.unl.edu/ianr/entmol/entdept.htm). It offers treatment guidelines and a discussion of the potential effects of mites in the Great Plains.

Ron Seymour, Extension Assistant Integrated Pest Management West Central Research and Extension Center, North Platte
Bob Wright, Extension Entomologist, South Central Research and Extension Center

Suggested treatments for spider mites

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Product name</th>
<th>Rate (Formulation per acre)</th>
<th>Restrictions or comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>bifenthrin</td>
<td>Capture 2EC</td>
<td>5.1-6.4 fl oz</td>
<td>Apply a minimum of 2 gallons of finished spray per acre by aircraft or 10 gallons with ground equipment.</td>
</tr>
<tr>
<td>dimethoate</td>
<td>Dimethoate</td>
<td>2/3 - 1 pint</td>
<td>Field corn only. Do not apply during pollen-shed period.</td>
</tr>
<tr>
<td>propargite</td>
<td>Comite 6.55EC</td>
<td>2-3 pints</td>
<td>Treat when leaves are dry. Treat early when corn is small enough (3-4 ft) to allow good coverage. Two gallons per acre minimum spray volume by air, 20 gallons per acre minimum spray volume by ground.</td>
</tr>
<tr>
<td>Comite II</td>
<td>2.25 pints</td>
<td>Same as for Comite 6.55EC</td>
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Treatment thresholds for spider mites, indicating percent of infested leaves/percent leaf area damaged.

<table>
<thead>
<tr>
<th>Control cost per acre</th>
<th>Market value per acre ($)</th>
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<tr>
<td>200</td>
<td>300</td>
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<tr>
<td>$5</td>
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<tr>
<td>10</td>
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</tr>
<tr>
<td>20</td>
<td>59/31</td>
</tr>
<tr>
<td>25</td>
<td>74/39</td>
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</table>

Source: Texas Agricultural Extension Service.
Start scouting for egg masses in south central Nebraska

Egg laying dates predicted for 2nd ECB

European corn borers are completing the first generation and moths are emerging across the state. The Nebraska European Corn Borer Software program was used to predict the timing of egg laying by these emerging moths, based on a sample of first generation larvae and weather data.

Larvae were collected from the South Central Research and Extension Center near Clay Center earlier this week. Larvae must be identified by larval stage (instar) to be used in the program. The following data were used to run the program.

Using 30-year average weather data for each location, the program produced the following predicted times for egg laying:

Percent egg laying complete by indicated date

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<td>South Central</td>
<td>7/24</td>
<td>7/31</td>
<td>8/6</td>
<td>8/10</td>
<td>8/16</td>
</tr>
<tr>
<td>Northeast</td>
<td>8/1</td>
<td>8/6</td>
<td>8/10</td>
<td>8/14</td>
<td>8/20</td>
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</table>

Past research in Nebraska has shown that these predictions are reasonably accurate (within two to three days). Assuming that maximum and minimum temperatures are 5°F higher than normal for the rest of July and August, egg laying may be two days earlier.

Fields with green silks during the peak moth flight period are most susceptible to second generation egg laying. The white, flat eggs overlap each other like fish scales and are laid in masses of 5-20 eggs. Eggs are most likely found on the underside of leaves, near the mid-rib, on the ear leaf and the three leaves above or below the ear leaf. A black spot is visible on the eggs for about 24 hours before they hatch. The spot is the head of the developing corn borer. This stage is often referred to as the black head stage.

Begin scouting for corn borer egg masses when 25% of egg laying is predicted.

To determine whether control would be profitable, examine 25 plants at four sites per field (100 plants total). Record the number of masses and the number of plants sampled. Go through the calculations outlined in the worksheet on page 137 to help determine if an economic infestation is present. Two versions of the worksheet also are available on the web at http://www.ianr.unl.edu/ianr/pubs/crpwatch/cornborer.htm. Using your input, these programs will calculate the economics of treatment for your situation.

Free web software helps determine treatment threshold

Free software, developed by entomologists and computer specialists at the University of Nebraska-Lincoln, is available to help determine treatment thresholds for second generation European corn borers.

Two software options are available at a web site: 1) one version can be downloaded from the web and run on Excel or 2), a second version can be run on the web, with the results printed to your site.

Both options are available through the electronic CropWatch News Service or free at:

http://www.ianr.unl.edu/ianr/pubs/crpwatch/cornborer.htm

For any of these worksheets, you also will need to know:

- crop stage
- expected yield
- expected market price
- percent control with insecticide
- cost of control (insecticide plus application costs)

Use of this worksheet will allow you to better evaluate the factors influencing the cost/benefit relationship for second generation European corn borer treatments. Average values are suggested in the worksheet, but may be modified for local conditions.

1) Borer survival is suggested to be 15%. Larval survival varies with weather conditions and irrigation. In irrigated corn, larval survival may be 20% or more, while in dryland corn with no significant rainfall, it may be 10% or less. Survival of eggs and small larvae de-

(Continued on page 137)
creases greatly in hot, dry weather, or with extended periods of heavy rain.

2) Yield loss will be about 4% per borer for infestations occurring before silks turn brown and 3% per borer after silks turn brown, but before blister stage. These averages are based on published research, but only account for physiological yield losses (reduced grain production) and do not consider yield loss from stalk breakage or ear drop. These factors are difficult to predict and vary with hybrid, cultural practices and weather.

3) Percent control with insecticides is suggested to be 75%; change this value if you think that control will be different under your situation.

Infestations are most damaging when corn borers enter the stalk early in the reproductive cycle of corn. There is a very short time between first egg hatch and when small larvae reach ear tips and other areas of the plant where they are protected from insecticide. Concentrate scouting efforts in this early egg laying period and repeat every three to five days. Often second generation egg laying may extend for 21 days or more. Although later hatching corn borers do not directly reduce grain yield as much, they may still cause stalk breakage or ear drop. Early harvest of fields damaged by corn borers and selecting varieties with good stalk strength and resistance to stalk rot can reduce loss.

If treatment is needed, time insecticide applications to coincide with the beginning of egg hatch to achieve acceptable control. A listing of registered insecticides, their rates and restrictions is in publications at your local University of Nebraska Cooperative Extension office.

Bob Wright, Extension Entomologist
South Central Research and Extension Center
John Witkowski, Extension Entomologist
Northeast Research and Extension Center

Management worksheet
Second generation European corn borers

_____ Number of egg masses/plant x 23 eggs/egg mass x 15% survival* = _______ borers/plants

_____ Borers/plant x 4% yield loss/borer** = _______ % yield loss

_____ % yield loss x _________ expected yield (bu/A) = _________ bu/acre loss

_____ Bu/A loss x $___________ sale price/bu = $___________ loss/acre

$ _____ Loss/A x 75% control = $___________ preventable loss/acre

$ _____ Preventable loss/acre

— _______ Cost of control (chemical + application costs)

=$_______ Profit (+) or loss (-) acre of treatment is applied

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

* Assumes 15% survival rate; may vary with weather.
** Use 3% loss per borer/plant if infestation occurs after silks are brown. The potential economic benefits of treatments decline rapidly if infestations occur after corn reaches the blister stage.
Research: Most pesticide runoff occurs 1-15 days after application

To better understand how surface waters become contaminated from pesticide runoff, a computer model is being used to examine how runoff amounts are related to pesticide loss.

Past research has demonstrated that most pesticide runoff usually occurs within the first 30 days after application and that pesticides are particularly vulnerable to runoff within the first 10 to 15 days. This shorter time frame (0-15 days) has been termed the “window of vulnerability”. Currently research is addressing which practices may best be suited for minimizing pesticide loss during this time.

By using a computer simulation model named GLEAMS, UNL researchers considered all runoff events that occurred during the window of vulnerability at an Otoe County site over 50 years. The relationship between surface water runoff and atrazine loss was then examined. What was found is that out of 55 runoff events that occurred during the window of vulnerability over those 50 planting seasons, 54% of all atrazine lost occurred from the top ten runoff events (see figure).

What is interesting is that not all the top runoff events produced the greatest amount of pesticide runoff. A closer examination of the top ten runoff events indicated that those storms that occurred closer to the day of pesticide application were the ones that produced the most atrazine runoff. Similar storms producing high water runoff, but occurring later on, did not produce as much pesticide runoff. This relationship indicates the importance of minimizing runoff immediately after application. To accomplish this, growers can avoid pesticide applications when heavy rains are forecast, not apply pesticides to wet or compacted fields, and where appropriate, incorporate pesticides immediately after application.

By continuing to study the relationship between storm events and pesticide losses for other counties in Nebraska, UNL researchers hope to further develop best management practices to minimize pesticide runoff.

Heat spell (Continued from page 134)

state. Unfortunately, medium range forecasts aren’t promising.

Hot, dry weather is expected for the next week, with a ridge dominating the weather pattern over the central High Plains. Scattered thunderstorms can develop with daytime heating, but the chances of broad coverage rainfall will be minimal without a frontal system pushing through the state.

Long range forecasts for August through October continue to indicate a strong tendency toward below normal temperatures. The greatest likelihood of below normal temperatures will be across the eastern half of the state during August and across the western two-thirds from August to October. There is no defined precipitation trend for Nebraska in the long range forecasts.

Al Dutcher
State Meteorologist
Agricultural Meteorologist

Steve Comfort, Extension Soils Environmental Chemist
Tom Franti, Extension Surface Water Management Engineer
Scott Gorneau, Research Assistant
Biological Systems Engineering
Plant Variety Protection Act limits sales, provides for further seed enhancements

Producers wanting to extend the benefits of a good harvest by selling grain for use as seed, need to be aware of their rights and responsibilities under the U.S. Plant Variety Protection Act.

This federal law requires that if a variety is protected, an individual can only save enough seed for use on their farm and can not sell any of the grain as seed.

First passed in 1970, the Plant Variety Protection Act protects the seed buyer and the rights of the people who market the variety. Before its passage, public institutions developed most new varieties. Since then, thousands of new varieties have been developed, providing for improved production and more consistent and resilient crops. By limiting the resell of grain developed from the original seed, the variety developer can get a higher level of return, which is then invested in the development of new varieties. Both university and private companies protect their varieties.

The act was amended in 1994 so that a farmer may only save enough seed of a protected variety to plant back on his or her own holdings. (Holdings include land that is owned, rented or leased.) If plans change and less is to be planted on the farmer’s holdings than originally intended, the farmer cannot sell any remaining seed without written permission from the variety owner.

It is simple to identify which varieties are protected, even during the rush of planting. While not all varieties are included under the law (see list), the seed label, bag, and/or invoice will indicate whether the seed is protected. Look for the statement “U.S. Protected Variety — unauthorized propagation prohibited”.

PVP is designed to prevent the sale of seed that isn’t properly identified, grown, or which may not have the variety characteristics the buyer expects. There are many other reasons why it is more economical in the long run to plant Certified quality seed rather than farm saved seed, including uniform seed, quality and disease resistance.

It’s important to realize that while the PVP Act has restricted certain practices, it has greatly benefitted producers by ensuring a wider choice of varieties with an increasing array of traits and improved performance qualities.

The Nebraska Crop Improvement Association expects that every seed buyer should be aware of his or her rights and responsibilities under the PVPA and Nebraska Seed Law. Wheat producers need to know that variety developers and the NCIA will not tolerate abuses of their variety protection rights.

For more information on the Plant Variety Protection Act and Nebraska Seed Law, contact the Nebraska Department of Agriculture at 402-471-2394.

Roger Hammons, Manager
Nebraska Crop Improvement Association

Protected wheat varieties

These wheat varieties have been granted or applied for plant variety protection under the U.S. Plant Variety Protection Act. Unauthorized production and sale of seed is illegal and prohibited. Seed may be sold for planting only when properly labeled as Certified Quality Seed. Always double check the label to see if a variety is protected by the PVPA.

Abilene Niobrara
Akron Ogallala
Alliance Rawhide
Arapahoe Redland
Big Dawg Siouxland
Centura TAM 107
Coronado Thunderbird
Hickok Tomahawk
Ike Vista
Jagger Windstar
Karl 92 2137
Laredo 2163
Longhorn

Pesticide applicator training in Omaha

The Nebraska Department of Agriculture will sponsor pesticide applicator testing at the Douglas County Extension Office at 8015 West Center Road in Omaha from 9 a.m. to 2 p.m. on two upcoming dates. People wishing to become certified as commercial applicators or to add categories to existing licenses may test on Aug. 16 and Sept. 10.

Testing opportunities also are available at the Nebraska Department of Agriculture, 301 Centennial Mall South, Lincoln. To schedule an appointment, call (402) 471-2394.
Interactive videoconference Aug. 18

What’s hot and what’s not in wheat

Wheat producers can get the latest information on the 1997 growing season and perspectives for the 1998 season during a free statewide satellite video program Aug. 18.

The program, which is being sponsored by the Cooperative Extension Division of the Institute of Agriculture and Natural Resources, will take an in-depth look at total wheat management, from variety selection to harvest. The program will be 8-10 p.m. (CDT) and 7-9 p.m (MDT) Monday, Aug. 18.

Presentations will address varieties to be released for the 1998 wheat crop, researcher’s comments on insect and disease issues, and perspectives from wheat producers, breeders, production agronomists, plant pathologists and entomologists. Participants will be able to learn about the advantages and disadvantages of new wheat varieties from those who grew and tested the new varieties this year. After the conference, open phone lines will be available party-line style to allow for discussions.

During the program listeners can call in program-related questions toll free to: 1-800-755-7765. After the program, toll-free telephone lines will be open for 30 minutes. Just dial the number for your region and join others in an open, online discussion. A moderator will direct call-in questions to a panel of specialists. Select the number for your region: Panhandle: 800-562-1569, West Central: 800-562-1571, South Central: 800-562-1576, All others: 800-562-1577.

You can watch at home, too. Satellite coordinates are Galaxy 4, Channel 9. Satellite owners can watch the seminar at home by turning their satellite to Galaxy 4.

For more information: Call 800-755-7765.

Sites hosting the conference:

Alma — Harlan County Extension Office, Courthouse, 706 2nd St.
Auburn — Nemaha County Extension Office, 4-H Building at fairgrounds (4 blocks north of Intersection Hwy 136/75)
Beatrice — Gage County Extension Office, 1115 W. Scott
Bridgeport — Community Center, 428 Main St.
Chadron — Dawes County Extension Office, 4-H Building, Fairgrounds
Clay Center — South Central Research and Extension Center
Curtis — Nebraska College of Technical Agriculture, 404 E. 7th
Fairbury — Jefferson County Extension Office, 517 F St.
Geneva — Geneva Public Library, 11th and G

Harrison — Sioux County Extension Office, Courthouse, 325 Main St.
Hastings — Adams County Extension, Fairgrounds Activity Center
Imperial — Chase County Fairgrounds, Fairgrounds 4-H Building, 7th and Park
Kearney — Buffalo County Extension Office, 1400 E. 34th
Kimball — Kimball/Banner Extension Office, 114 East 3rd
North Platte — West Central Research and Extension Center
Ogallala — Keith County Extension Office, Fairgrounds Exhibit Building, 1100 West 5th
Rushville — Sheridan County Extension Office, 105 Loofborrow Scobbluff — Panhandle Research and Extension Center, 4502 Ave. 1
Sidney — Lodgepole Valley Youth Camp, Hwy 19 and Toledo St.

Panhandle Field Day Aug. 7

The University of Nebraska Panhandle Research and Extension Center Field Day is scheduled for Aug. 7. This field day is of particular interest to farmers producing row crops under irrigation.

Tours, which begin at 9 a.m., will focus on sugarbeet, dry bean, corn, and alfalfa research projects. The Center is part of the University of Nebraska Complex one mile north of Scottsbluff. University specialists will discuss current research projects and production changes expected for two to three years in the future.

The Scottsbluff/Gering United Chamber of Commerce Agribusiness Committee is cooperating with the Field Day Committee to serve a beef and bean barbecue. The Scottsbluff/Morrill County Extension Service is also planning to conduct a tour of newly established alfalfa plots in the afternoon.
Several new wheat varieties available for '98

Several new wheat varieties have been tested in Nebraska performance trials and will be available for planting for the first time in 1997. They include:

**AgriPro brand Big Dawg**, a medium maturity variety of moderately short height. It has fair to poor winterhardiness and is best adapted to optimum production conditions. It would be useful as a full season complementary variety for the southern hard red winter wheat region and in reduced tillage or continuous wheat systems. Big Dawg has very good protection to tan spot, septoria leaf blotch, and most other residue-borne diseases. It has a long coleoptile, very good tillering ability and straw strength. The grain has good test weight patterns and acceptable milling/baking qualities.

**Windstar**, a medium maturity variety from Nebraska, has shown consistent yield performance under dryland production systems across the state and in the central to northern hard red winter wheat region. It is genetically complementary to Alliance, Arapahoe, Niobrara, and most other varieties. Windstar is medium to medium tall in height with good straw strength and a moderately open and upright canopy. It has fair to good winterhardiness. Coleoptile length is short, similar to Alliance. The grain has average test weight patterns and acceptable end-use quality characteristics.

**2137** is an early maturing variety from Kansas State University. It is of moderately short height, slightly taller than TAM 107 and Karl 92. It can be grown statewide and is best adapted to more productive soils and sites. Straw strength is very good to excellent, and it is well suited to irrigation. Its above average resistance to residue-borne foliar diseases makes it a useful choice for reduced tillage/continuous wheat systems. This variety is moderately susceptible to stem rust. It has a moderately short coleoptile, good tillering ability, and fair to good winterhardiness. Grain has average test weight patterns with acceptable milling and baking qualities.

**Polansky brand Dominator** is a moderately early maturing variety with fair winter hardiness. It has very good straw strength and moderately short plant height with a short coleoptile. It is moderately resistant to leaf and stem rust, soil borne mosaic, speckled leaf blotch, powdery mildew, and Hessian fly. It is moderately susceptible to tan spot. This variety appears suited to more productive soils and sites. Its grain has very good test weight.

**Quantum Hybrid 7406** is from Hybritech Seed International. It is an early maturing hybrid with good to very good winter hardiness. It has very good straw strength, moderately short plant height, and a short coleoptile. It is best targeted to optimum production in western Kansas, eastern Colorado, southwest Nebraska and irrigated areas of the southern High Plains. It is resistant to soil borne mosaic virus and moderately susceptible to leaf rust and septoria leaf blotch. It is susceptible to wheat streak mosaic virus and Hessian fly.

Also remember newer choices released in the last two years for which test data is available: AgriPro brand Coronado, Pronghorn, Jagger, Akron, Halt, Quantum Hybrid AP7510, and Star brand Champ.

Note: Inclusion or exclusion of a specific variety does not indicate endorsement or lack of endorsement of a particular seed product. For more information about these varieties and many others which have been tested in Nebraska, see the Wheat Variety Testing Home Page at [http://ianrwww.unl.edu/ianr/agronomy/whattst/whattst.htm](http://ianrwww.unl.edu/ianr/agronomy/whattst/whattst.htm)

It includes a nifty map so users can click on the area they're interested in and get this year's results (some are already available) or they can sign up for a regular mailing of the variety test results.

Roger Hammons, Manager
Nebraska Crop Improvement Association

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**Insect photo cards help sort the good bugs from the bad**

Not all the critters in your crops, garden and yard are bad guys. The newest creation from the Illinois Natural History Survey helps you tell the difference between insect pests and beneficial insects that actually eat the pests. Now when you encounter the good guys, you'll keep them alive so they can help control the bad guys without the use of toxic chemicals.

The Good Guys! Natural Enemies of Insects, by M.R. Jeffords, S.L. Post, R.N. Wiedenmann, and C.S. Sadof, is an easy-to-use guide of natural enemies of insect pests. It consists of 31 plastic laminated cards (about the size of baseball cards) that withstand dirt and moisture. They provide full color photos of beneficial natural enemies on the front side and a concise and accurate description of the organism's natural history on the reverse side. The cards are held together with a fastener so you can bring the entire set to the field to page through them as needed and identify those previously unknown friends.

To get a set, send a check payable to the Illinois Natural History Survey for $8 ($7 plus $1 shipping) to:

Distribution Office
Illinois Natural History Survey
607 E. Peabody Drive
Champaign, IL 61820
We planted a large number of walnut trees about six weeks ago and the weeds are overtaking them. It is a back breaking job trying to get them out of the rows. We can till between the rows but of course not near the trees. Is there something that we can spray on the trees that will kill the weeds and not the trees? We never realized that it would get this bad so fast. Thank you.

Marge B.

Dennis M. Adams, Extension Forester, replied:
Several herbicides, e.g. Fusilade, Poast, can be applied over-the-top of young walnut trees to effectively kill existing grassy weeds. However, they are not effective on broadleaf weeds. There are no post-emergence herbicides labelled for broadleaf weed control that will not also damage the walnut trees.

If broadleaf weeds must be controlled around the trees and/or within the tree rows, a careful application of glyphosate (Roundup) will kill all existing vegetation. However, care must be taken to prevent the spray from contacting any tree tissues.

Without seeing the plantation, my suggestion to control weeds this year is to mow between tree rows as close as possible to the trees and leave the weeds (except noxious weeds) in the tree rows. Next spring a pre-emergence herbicide, e.g. Surflan, Princep, may be applied to help control weeds for an extended period. Often supplemental cultivation or herbicide applications are needed for season-long weed control. Be sure to follow label directions. I would also encourage you to contact your District and Extension Forester for specific management recommendations.

July 25, 1997

Precipitation (% = percent of average)

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<td>13.09</td>
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<tr>
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For data on more emergence dates and maturity classes, consider subscribing to the CropWatch News Service on the web, where crop water use data is updated daily.

Degree day accumulations for wheat, corn, soybeans and sorghum*

<table>
<thead>
<tr>
<th>Location</th>
<th>Med. maturity wheat ending on 7/20/97</th>
<th>Corn ending on 7/20/97</th>
<th>Soybeans ending on 7/20/97</th>
<th>Sorghum ending on 7/20/97</th>
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</tbody>
</table>

*Growing degree days to maturity for early season (1), mid season (2) and late season (3) crops:
MC = maturity class
Corn: MC1 = 2400; MC2 = 2500; and MC3 = 2750
Wheat: MC1 = 1600; MC2 = 1840; and MC3 = 2000
Soybeans: MC1 = 1950; MC2 = 2360; and MC3 = 2450
Sorghum: MC1 = 2125; MC2 = 2200; and MC3 = 2369