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European corn borer moths have been collected in most counties in eastern and central Nebraska and the "war has begun" for 1996. The next several weeks of scouting for live larvae and plant whorl damage are critical to insecticide timing and successful control.

Be attentive to all corn but particularly to taller corn growing where the plant height differential is extreme because of rain interrupted plantings. Although moths will lay eggs on any size corn, they prefer the tallest corn and larval survival is connected to plant height.

Whorl feeding native resistance that causes borer death after feeding is generally associated with high concentrations of DIMBOA, a plant aglucone. It is expressed best when plants are small and DIMBOA concentrations are at their highest. DIMBOA concentrations decrease as the plant grows and is ineffective after tasseling. Research has shown that there are significant differences in whorl feeding native resistance traits among hybrids. Some hybrids are highly susceptible to borer damage even when plants are quite small, other hybrids show excellent whorl feeding native resistance throughout their vegetative stages.

Other factors over the next few weeks that will influence the magnitude of the first generation corn borer infestation include: 1) weather; warm, mild temperatures, high relative humidity and the absence of violent, hard driving rainstorms will favor survivalship; and 2) high populations of the lady beetle, Coleomegilla maculata, an important egg mass predator, and two larval parasitic wasps, Eriborus terebrans and Macrocentrus grandii, will have a negative impact on populations.

Even though late plantings and cool wet weather have typified this spring, things will change rapidly. Prepare now to begin scouting. The critical information needed are percentage of infested plants and number of live borers per plant. Next week we will offer some help on treatment need and timing.

John Witkowski, Extension Entomologist, Northeast District

Cultivation time treatments recommended

Corn rootworm egg hatch detected

Rootworm egg hatch was detected June 10 at Clay Center and is likely to occur in the southern half of the state this week.

Scout corn fields for corn rootworm larvae and damage, regardless of whether a soil insecticide was applied at planting. This will help determine whether an insecticide is needed, if one was not used at planting, and provide a check of the effectiveness of planting time insecticide applications. In particular, it is possible that corn treated at planting in April may experience less effective control due to the late hatch and wet weather this year. If control is poor, a rescue treatment may still be applied before too much damage occurs.

To check for the presence of larvae in a field, dig a 7-inch cube of soil centered on the corn plant. Sample a minimum of two plants at each of five sites in a field. Carefully search through the soil and plant roots for larvae. There are three larval instars (stages). The first (Continued on page 91)
Greenbugs in sorghum

Greenbugs are present in some early planted sorghum fields in southeast and south central Nebraska with some fields nearing the treatment threshold (see May 31 CropWatch for more information). Very few chinch bugs were found in southeast Nebraska wheat fields this week. Updated lists of recommended and registered insecticides for greenbug and chinch bug control are now available on the University of Nebraska Department of Entomology Home Page (http://ianrwww.unl.edu/ianr/entomol/entdept.htm).


Growing degree day accumulations indicate that common stalk borer feeding is possible throughout the southern two-thirds of the state.

Z B Mayo
Entomology Professor

Weed tour nears

The Nebraska Weed Tour will be held June 19-20 in western Nebraska and June 24-25 in eastern Nebraska. The itinerary is:

Wednesday, June 19, 8:30 a.m., West Central Research and Extension Center near North Platte; and 3 p.m., High Plains Agricultural Laboratory, Sidney;

Thursday, June 20, 8:30 a.m. (MDT): Panhandle Research and Extension Center, Scottsbluff;

Monday, June 24, 1 p.m.: Northeast Research and Extension Center, Concord;

Tuesday, June 25, 9 a.m.: Lincoln, 84th and Havelock streets.

John McNamara, Extension Assistant, Weed Science
Pros and cons of fertilizing hailed corn

Should you fertilize hail damaged corn?

Hail storms prompt many questions about managing irrigated corn. The first thing growers need to determine is whether a sufficient stand remains to produce a higher yield than a replanted crop. At this time of year, corn replanting options are limited. Usually a week is required after a hail storm to determine if viable plants have survived and what the stand uniformity is. A hail in mid-June means a later June or early July planting — hardly enough time for even the shortest season hybrids to mature and produce a profitable yield. For more information on replanting decisions check EC 89-119, Hail Damage Assessment and Replant Decisions, and NebGuide G89-803, Assessing Hail Damage to Corn.

If producers determine they have a viable, potentially profitable plant stand, the next question is whether additional fertilizer will help the crop recover sooner, resist disease or enhance yield.

The only nutrients that might enhance yield are nitrogen and sulfur. Other nutrients (Phosphorus, Potassium, and Zinc) applied before or at planting are still in the soil and will provide sufficient amounts for the remaining crop. Applying additional nitrogen and sulfur should be based on yield potential and how much of the total crop requirements have already been applied. If all of the nitrogen or sulfur has not been applied, more will be needed to meet the crop’s yield potential. In may cases, however nitrogen or sulfur has been applied for an even higher yield potential than exists after the hail storm. Yield potential may have been reduced 10-40% depending on hail severity. In these situations, additional fertilizer is not likely to increase yields. If there was sufficient nitrogen for a 180 bushel per acre crop, there will be sufficient nitrogen for a 120 bushel per acre crop.

There is limited research on response of hail damaged corn from adding fertilizer. Data from Kansas in the early 1980s showed no yield increase during three years if sufficient fertilizer had been applied prior to hail. Fertilizer combinations tested were 28-0-0, 12-0-0-26S, elemental sulfur and 10-34-0.

Some producers may be asking about the effect of sulfur or copper to speed up the plant’s recovery or to protect it from disease? Aren’t sulfur or copper mixes used to suppress some leaf diseases? Yes, this is true for many crops including dry beans, grapes, etc. The spray applied is concentrated (a 1-3% solution which is 10,000 to 30,000 parts per million) of inorganic or organic sulfur or copper mixes (Bordeaux mixture, lime-sulfur, carbamates, elemental sulfur, copper oxide). When 10 lb of sulfur from 12-0-0-26S is applied in one inch of irrigation water through a center pivot, the sulfur concentration is approximately 120 ppm sulfur, a much lower level than the 1-3% concentrations normally used to suppress disease. Center-pivot applied sulfur or copper at usual field rates (5-10 lb S/a, 0.5-1 lb Cu/a) generally are not concentrated

Corn rootworms (Continued from page 89)

instars are about 1/16 inch long and difficult to find without magnification. Often the first detected rootworms are second instars. Corn rootworm larvae are slender, cream-colored, with brown heads and a dark plate on the top side of the tail, giving them a double headed appearance. Mature larvae are 1/2 inch long. Search through the soil and roots over a sheet of black plastic to help you see the small white worms. There is no established treatment guideline for corn rootworm larvae, but some consultants advise treating if there are two or three rootworms per plant. The usefulness of this guideline is dependent on your ability to find rootworm larvae in the soil.

Cultivation time treatments of insecticides are an effective means of reducing injury to corn plants from rootworm feeding damage. If needed, they should be applied soon after egg hatch. Most planting-time soil insecticides labelled for corn rootworms are also labelled for use at cultivation. Incorporate granules with 1-2 inches of soil after application; effectiveness may be decreased unless the insecticide is incorporated.

Other options include the use of Furadan 4F and chemigation treatments with Lorsban 4E. Timing for Furadan 4F should be between first egg hatch and peak egg hatch. Control will generally be improved if the treatment is cultivated into the soil, unless sufficient rainfall occurs after application to move the insecticide down into the root zone. Lorsban 4E applications should be timed for the first appearance of second instar corn rootworms. Additional information on suggested insecticides, rates and restrictions is available in EC 94-1509, Insect Management Guide for Nebraska Corn and Sorghum.

Bob Wright
Extension Entomologist
South Central District

(Continued on page 92)
Holcus spot likely this year in corn

If we continue to have stormy, unsettled weather with occasional thundershowers during the next several weeks, a bacterial disease called Holcus spot is likely to develop on corn. Although the disease is usually of minor significance in terms of plant growth and subsequent yield, its sudden appearance causes considerable alarm and makes the young corn seedlings look pretty sick. Following is a description of its symptoms and the factors favoring its development.

Leaf lesions are round to slightly oblong spots ranging in size from 1/4" to 1/2" in diameter. They first appear on the lower, older leaves commonly towards the tips. The spots are creamy white to tan and eventually dry and turn brown, often with reddish to brown margins surrounded by a yellow halo. Similar spots also may be seen on other grassy hosts, including sorghum, millet, and Johnson grass.

Holcus spot will be most evident in continuous corn under no-till or minimal tillage conditions. Warm (75°-85°F), wet weather allows the Holcus spot bacteria to build up on leaf surfaces. The bacteria enter the leaves through natural pores (stomates) or small leaf abrasions during wind-driven rain storms, and first leaf symptoms are seen 7 to 10 days later. Driving rains and/or windy, wet weather are especially conducive to infection. Although the field situation may look bad, our experience has been that plants "recover" with hotter, drier weather.

David S. Wysong
Extension Plant Pathologist

Tan spot, barley yellow dwarf prevalent in winter wheat

Tan spot continues to be the most prevalent foliar disease and barley yellow dwarf the most prevalent virus disease in Nebraska's wheat crop. In fields with last year's stubble, tan spot incidence is high but the flag and flag-1 leaves are not heavily infected. In addition to these two diseases, wheat streak mosaic, flag smut and Cephalosporium stripe have been observed. The incidence of wheat streak mosaic and Cephalosporium stripe is low, and flag smut was found in just one field.

A few growers have expressed concern over trapped heads. The most likely cause is 2,4-D applied at the wrong time or hail damage. Both can cause the heads to be trapped by the flag leaf. Trapped heads will continue to fill but not as efficiently as nontrapped heads, so fields with a high incidence of trapped heads will experience some yield loss.

There is still some interest in spraying wheat for control of tan spot. Since leaf rust is not going to be severe this year, Dithane M-45, Dithane F-45 or Manzate 200 should provide good protection of flag leaves from tan spot. Seed fields or potentially high yielding fields where tan spot is active on the lower canopy would be potential candidates for fungicide treatment. Adding a spreader sticker should improve coverage and residual activity of the fungicides.

We have had only reports of scab. Cool, moist weather during flowering promotes scab, where hot, dry weather deters its development.

John E. Watkins
Extension Plant Pathologist

Fertilizing

(Continued from page 91)

enough to enhance disease suppression in corn.

Additional fertilizer may be needed for hailed corn if the total nitrogen or sulfur requirements have not been met. Adding more fertilizer does not enhance the yield potential, promote faster recovery or reduce disease susceptibility.

Gary Hergert, Extension Soils Specialist, West Central District

Update

(Continued from page 90)

Saunders County, writes "Last year a number of producers in the Saunders County area used the seed box treatment and experienced problems with germination, but it was associated with prolonged contact with the treatment. When it rained and the seed stayed in the planter for a period of time a reduction of 30-50% in germination was noted. When they added new seed to the boxes even though the seed treatment was included you could tell to the row when the new seed was added."

Source: CropWatch Electronic Listserver

We encourage producers, crop consultants, and University Extension staff to use the CropWatch listserver as a means of exchanging information or sharing questions. With the sender's permission, submissions up to Wednesday morning of the week of publication may be included in CropWatch. To subscribe to the CropWatch listserver, send a message to: LISTSERV@UNLVM.UNL.EDU and in the message field enter: subscribe cropwatch Firstname Lastname. To send information to list members, address e-mail to: CROPWATCH@UNLVM.UNL.EDU (Note: We were limited to eight letters so there's no "T" in "Cropwatch".)
Control weeds in wheat before harvest

Many winter wheat fields suffered some stand loss this past winter. This injury is still noticeable in some fields, particularly on north or northwest facing hillsides. The winter wheat in these areas is not competitive with weeds. Due to a very dry early spring, few summer annual broadleaf weeds were present when wheat was sprayed for weed control. The May rains changed that situation, but it is too late to spray winter wheat without incurring significant crop injury. Untreated weeds, or weeds that emerged after spraying with non-residual herbicides such as 2,4-D or Buctril, may grow large enough to hamper harvest, particularly in areas of thin wheat.

For winter wheat fields with weed populations that may interfere with harvest, consider 2,4-D low volatile ester as a harvest aid treatment. Apply 2,4-D low volatile ester at a rate of 1 quart/acre (4 pounds active ingredient/gallon) to winter wheat in the hard dough stage. Earlier application of 2,4-D may cause serious injury to the wheat. To reduce breakage, all green color should be gone from the joints. The 2,4-D must be applied at least seven days before harvest. Not all brands of 2,4-D are labeled for use as a harvest aid treatment, so be sure to check the label.

Ally is labeled for use as a harvest aid treatment. Ally at 0.1 oz/acre + surfactant at 1-2 quarts/100 gallons of spray solution may be combined with 2,4-D low volatile ester or Landmaster BW (supplemental label). Ally provides for more rapid burndown and control of large kochia and Russian thistle plants than 2,4-D or Landmaster BW alone.

Consider the following factors before applying Ally + 2,4-D or Landmaster BW as a harvest aid:

1. No more than 0.1 oz/acre of Ally may be applied to a single field in a 22-month period.
2. Some crops cannot be planted for up to 22 months after applying Ally (sunflower for example).
3. This treatment must be applied at least 10 days prior to wheat harvest, but after the wheat has entered the dough stage.
4. Wheat straw treated with Ally should not be used as a mulch.

Roundup Ultra RT and Landmaster BW (supplemental label) both have labels for preharvest application in wheat. These products must be applied to wheat after the hard-dough stage and at least seven days before harvest. Adding 8.5 to 17 pounds of spray grade dry ammonium sulfate to each 100 gallons of spray solution may increase the performance of Roundup Ultra RT and Landmaster BW on annual weeds. See the label for recommended use rates. Use Roundup Ultra RT and Landmaster BW when grasses are the major weed. Do not use them when the major weed is wild buckwheat.

Before spraying, check adjacent fields for susceptible crops. Also recognize these are harvest aids; the damage to the wheat from weed competition has already been done. It is also important to realize that the 7- to 10-day interval between herbicide application and harvest is necessary to allow weeds to thoroughly dry out. Non-dried weeds may act like ropes at harvest, resulting in significant headaches at harvest.

Drew J. Lyon, Extension Dryland Cropping Systems Specialist, Panhandle District
Robert N. Klein, Extension Cropping Systems Specialist, West Central District
Gail A. Wicks, Extension Weeds Specialist, West Central District

Wheat shorter, stalks thinner

Wheat in southwest and southcentral Nebraska has been hardest hit by drought and adverse weather conditions causing shorter plants and thinner stalks, according to Drew Lyon, dryland crops specialist at the Panhandle Research and Extension Center in Scottsbluff.

Wheat in southwest Nebraska near North Platte was severely hurt by winter kill, and is four to five days behind growth in the Panhandle. In areas most affected by low soil moisture and cool spring temperatures, stands are projected to have 20- to 24-inch high wheat at harvest, rather than the usual 36-inch wheat. Decreased plant size and stem thickness can have negative effects on total yield, primarily because of difficulties with harvesting, Lyon said.

According to the Nebraska Agricultural Statistics Service, this year’s projected yield for wheat statewide is 31 bushels per acre, down from last year’s relatively high average yield of 41 bushels per acre. Over the past four years, the mean dryland wheat yield in the state was 35 bushels per acre.

Nebraska wheat producers planted about 2.2 million acres of wheat this year and will abandon 250,000 of those acres, leaving about 1.95 million acres left to harvest. This is slightly more than the yearly average of 10% of the wheat crop being destroyed.

Weed and disease pressures as well as potential high wind and storm damage continue to threaten this year’s wheat yields, however much of Lyon said most.

“At this stage of the game, it’s pretty much up to Mother Nature to finish out the year,” Lyon said.

Jason Grotelueschen
Editorial Assistant, CropWatch
Determining stand counts necessary for management decisions

Some producers may be thinking that their stand looks thin, especially with drilled crops, and are wondering if they should replant. The "ideal" stand depends on productivity of the soil, available moisture throughout the growing season, management ability, and many other factors. However, it is getting late enough in the season that replanting a thin stand may not be a good option. The yield loss because of late planting may be more that the reduction due to a less-than-ideal stand. An acceptable stand of soybeans is over 75,000 plants per acre. An acceptable stand of grain sorghum is over 35,000 plants per acre. An accurate stand count is needed to make informed decisions.

The actual plant population can be checked by counting the plants in a known area, usually 1/1,000 of an acre. With row crops, measure out a length of row to equal 1/1,000 of an acre (Table 1), count the plants, and multiply by 1,000 to get the population. For example, 28 plants in 17 feet 5 inches of a 30-inch row would be 28,000 plants per acre. Fine for corn, but rather thin for soybeans.

Table 1. Length of row to equal 1/1,000 of an acre for various row spacings.

<table>
<thead>
<tr>
<th>Row Spacing</th>
<th>Row Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>15&quot;</td>
<td>34' 10&quot;</td>
</tr>
<tr>
<td>19&quot;</td>
<td>27' 6&quot;</td>
</tr>
<tr>
<td>30&quot;</td>
<td>17' 5&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
<td>14' 6&quot;</td>
</tr>
<tr>
<td>38&quot;</td>
<td>13' 9&quot;</td>
</tr>
</tbody>
</table>

With drilled crops, the length of row to equal 1/1,000 of an acre gets to be quite long (ie: 69 feet 8 inches for 7.5-inch rows) and it is sometimes difficult to identify the row. To avoid these problems, many producers toss a hula-hoop to define the known area when counting plants in drilled fields. Knowing the area encircled by the hula-hoop, the appropriate calculations will give an estimate of the population.

The "standard" toy hula-hoop is usually either 30 or 36 inches in diameter, not a convenient sized known area. However, a circle with an inside diameter of 40 inches will encircle a known area of 1/5,000 of an acre. By taking plant counts within a 40-inch circle at five random locations in the field, 1/1,000 of an acre will be counted. The five separate counts reduce the variability of the sample by providing an average.

A hoop with a 40-inch inside diameter can be easily made from a 10-foot 8.5-inch length of 1/2-inch black plastic water pipe and a double male hose barb connector. (Trim hose length depending on connector style.) This will make a fairly rigid "oversized hula-hoop" which encircles 1/5,000 of an acre. A "fold-up" portable version can be made from a 10-foot 7-inch length of 3/8-inch EVA plastic hose (anhydrous ammonia hose) and the appropriate barbed connector. This flexible hoop can be "folded" by grasping opposite sides of the hoop and curling it up with a twist of the wrist. A three-coiled hoop is formed (similar to a folded V-belt) which will easily fit under the pickup seat.

The Gage County 4-H Council is making and selling the fold-up version of the hoop as a fund-raiser. The hoop has weather proof instructions attached to it for stand counts. The cost is $5 if picked up at the office or $7.50 if mailed. Contact the University of Nebraska Cooperative Extension Office in Gage County at 402-223-1384 (Beatrice) if you are interested.

Paul Jasa
Extension Engineer

Concord CRP tour June 18

The Northeast Research and Extension Center will host Conservation Reserve Program (CRP) tours on Tuesday, June 18 at the Center, located 1 1/2 miles east of Concord.

Tours will focus on returning CRP land to crop production and include visits to plots that have been released from CRP for one or two years. Presentation topics will include: crop selection and rotation, soil moisture and fertility, pest and residue management, and wildlife management. University specialists and staff will be available to answer questions throughout the tours.

Tour wagons will take participants from the Center to the CRP plots at 2:30 p.m., 2:50 p.m., and 3:10 p.m. Each tour will last approximately two hours and is free to the public.

NEREC has applied for Nebraska Certified Crop Advisor Program Continuing Education Unit credits. Credits, if approved, will be given in soil and water management, soil fertility, integrated pest management, and crop production.

For more information, contact Melinda McVey McCluskey, Northeast CRP Project Coordinator, at 402/584-2810.

Melinda McVey McCluskey
CRP Project Coordinator
Northeast District