Mark Your Calendars for the 2005 Crop Protection Technology Conference

The 57th annual meeting of the Illinois Crop Protection Technology Conference will take place on January 5 and 6, 2005, at the Illini Union on the campus of the University of Illinois. This year’s conference will begin with a keynote session on climatological changes and their effects on crop production and crop protection practices. Many of these changes include the more familiar trends we’ve all observed with respect to earlier planting and harvest dates. In addition, it seems that we experience, in the United States and elsewhere around the globe, weather events such as droughts, floods, tornadoes, and hurricanes that are more frequently extreme than in previous decades. Do scientific data support these perceptions? Are climatological changes real and more extreme? If so, are they part of the natural and cyclical changes that have occurred for eons?

In addition to the keynote session, the conference will offer six symposia and 15 specialized seminars that participants can choose from. In essence, each participant at the 2005 conference can tailor his or her own program and seek CCA credits of the most personal importance. Speakers at the symposia will address the following topics: (1) soybean rust, (2) management of natural resources and related regulatory issues, (3) corn rootworm management challenges, (4) disease management with foliar applications, (5) emerging crop protection issues, and (6) transgenic management of field crop pests. Each symposia will feature three or four speakers and last 1-1/2 hours. The specialized seminars, which also will last 1-1/2 hours, are designed to be more interactive. Topics cover a broad range of subjects, including (1) ground versus aerial application methodologies, (2) emerging corn nematode issues, (3) forage management, (4) soybean aphids, (5) integrating electronic technologies with IPM, (6) designing on-farm research protocols, (7) soil testing and quality control, (8) wheat management, (9) fungicide modes of action, (10) troubleshooting difficult field crop pest problems, (11) sampling protocols for soybean rust, (12) management of secondary soil insects, (13) aquatic weed management, (14) water-quality (herbicide/nitrogen) related issues, and (15) pesticide drift and sensitivity of different plant species. Specialized seminars and symposia will each be offered twice.

If you have any questions about the content of the 2005 program, please contact Mike Gray (megray@uiuc.edu) and/or Suzanne Bissonnette (sbsison@uiuc.edu). Questions also may be directed to Sandy Osterbur (saosterb@uiuc.edu, 217-244-2124), conference coordinator. The registration fee prior to December 17 is $110. After that date, the fee will increase to $140. Please consult the following Web site for registration information (https://www.conted.uiuc.edu/fmpro/cptc_reg_2005.html). —Mike Gray
Dates and Locations Set for the 2005 University of Illinois Corn and Soybean Classics

In January 1998, Extension specialists in the Department of Crop Sciences began staging University of Illinois Corn and Soybean Classics at various venues around the state. These meetings have been very successful, attracting more than 1,000 people annually. Once again for 2005, we think we have an excellent program to deliver. So mark your calendar now and plan to attend one of the Classics:

- January 11, Bloomington, Interstate Center
- January 12, Rochelle, Hickory Grove Banquet Center
- January 13, Moline, The Mark
- January 18, Springfield, Crowne Plaza
- January 19, Mt. Vernon, Holiday Inn
- January 20, Collinsville, Holiday Inn

The presentations for the 2005 Classics will focus on some of the most timely issues associated with corn and soybean production and protection. Although the arrangement of presentations occasionally must be altered to accommodate speakers’ schedules, following is the planned line-up:

Morning
- Can We Rotate Our Way to Higher Crop Yields?—Emerson Nafziger
- More Corn and Less Soybeans: Does It Pay?—Gary Schnitkey and Dale Lattz
- Economic Aspects of Drainage and Water Management—Richard Cooke
- More Isn’t Always Better—Aaron Hager
- Characteristics of Soybean Foliar Diseases from Bacterial Blight to Rust—Dean Malvick

Afternoon
- So You Think You Can Ignore Nematodes? Think Again—Terry Niblack
- Insect Management Redux—Kevin Steffey
- How Much N Do You Need?—Robert Hoeft

A question-and-answer session will follow the presentations, both in the morning and the afternoon.

More details (for example, registration, times, CCA credits) about the Classics will be provided in a future issue of the Bulletin. However, I wanted to give you an overview now so that you can hold the date(s) on your calendar. We know that your schedule for meetings fills up rapidly, so we hope to be among the first to attract your hard-earned attention. We look forward to seeing you at one or more of the Classics.—Kevin Steffey

INSECTS

Results of Variant Western Corn Rootworm Larval-Injury Survey

During late July and early August, an on-farm survey of western corn rootworm larval injury was conducted in 24 Illinois counties. The survey was accomplished with the generous cooperation of University of Illinois Extension Crop Systems and IPM educators. We extend our thanks! In each county, 10 first-year cornfields were selected at random and five roots were evaluated for injury on the Iowa State 1- to 6-injury scale. The established economic injury index for this scale is considered to be equal to a rating of 3.0 (some roots pruned, never equivalent to 1 node of roots). For a complete description of how to utilize this root-injury scale, please consult the following video at our University of Illinois IPM Web site: http://www.ipm.uiuc.edu/videos/western_corn_rootworm/index.html. Counties included in the 2004 survey were those located primarily in northwestern and western Illinois. In addition, a few counties such as Clay and Fayette were included to track the movement of the variant western corn rootworm to the south. The results of our on-farm survey efforts are provided in Table 1.

The average root-injury ratings across the majority of counties are quite low. However, averages can be misleading. Producers are encouraged not to base their management decisions for 2005 strictly on the basis of these averages. For a more complete assessment of the variant western corn rootworm’s impact in these counties, we’ve added two other data summary columns in Table 1: the percentage of roots with injury that equals or exceeds a root-injury rating of 3.0 and the range of root injury. The percentage of roots

Table 1. Results of Illinois on-farm corn rootworm larval injury surveys, July-August 2004.

<table>
<thead>
<tr>
<th>County</th>
<th>% roots with injury ≥ 3.0</th>
<th>Range in root injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Brown</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Bureau</td>
<td>30</td>
<td>1-3</td>
</tr>
<tr>
<td>Carroll</td>
<td>2</td>
<td>1-3</td>
</tr>
<tr>
<td>Clay</td>
<td>6</td>
<td>1-4</td>
</tr>
<tr>
<td>Fayette</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Fulton</td>
<td>2</td>
<td>1-3</td>
</tr>
<tr>
<td>Hancock</td>
<td>10</td>
<td>1-3</td>
</tr>
<tr>
<td>Henderson</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Henry</td>
<td>14</td>
<td>1-5</td>
</tr>
<tr>
<td>Jo Daviess</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Knox</td>
<td>2</td>
<td>2-3</td>
</tr>
<tr>
<td>McDonough</td>
<td>12</td>
<td>1-4</td>
</tr>
<tr>
<td>Mercer</td>
<td>4</td>
<td>1-3</td>
</tr>
<tr>
<td>Montgomery</td>
<td>2</td>
<td>1-3</td>
</tr>
<tr>
<td>Morgan</td>
<td>2</td>
<td>1-3</td>
</tr>
<tr>
<td>Ogle</td>
<td>18</td>
<td>1-3</td>
</tr>
<tr>
<td>Pike</td>
<td>7</td>
<td>1-3</td>
</tr>
<tr>
<td>Rock Island</td>
<td>4</td>
<td>1-3</td>
</tr>
<tr>
<td>Schuyler</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Stark</td>
<td>72</td>
<td>1-5</td>
</tr>
<tr>
<td>Stephenson</td>
<td>0</td>
<td>1-2</td>
</tr>
<tr>
<td>Warren</td>
<td>8</td>
<td>1-4</td>
</tr>
<tr>
<td>Whiteside</td>
<td>6</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Whiteside
within a given county that equals or exceeds an injury rating of 3.0 is significant for several counties, including Bureau (30%) and Stark (72%). In addition, several counties have some isolated roots with severe pruning (roots with injury ratings of 4 or above): Clay, Henry, McDonough, Stark, and Warren. Half the counties surveyed had at least some roots with ratings equal to 3.0. We believe the results of the 2004 survey indicate that the variant western corn rootworm continues to expand its range in Illinois.

Decisions regarding the need for a soil insecticide in first-year cornfields in 2005 should be based upon scouting input and the use of thresholds. For many years, we have encouraged producers to use Pherocon AM traps in their soybean fields to monitor densities of western corn rootworm adults. We know considerable variation occurs in densities of western corn rootworm adults from field to field, even in areas where the variant is well established. We also know that many producers are not eager to use these traps. Consequently, many fields are treated that do not require soil insecticides.

In early September, Kevin Steffey and Mike Gray spent part of a day in Coles County surveying cornfields for European corn borer damage. Although we found very little borer damage, we did find several fields of first-year corn with moderate levels of lodging due to root pruning. Some producers may still consider first-year cornfields to the south of Champaign County, such as Coles and Clay, out of harm’s way when it comes to the variant western corn rootworm. We believe this assumption will continue to be challenged by western corn rootworms more aggressively in the future. Again, the use of Pherocon AM traps in soybean fields can help pinpoint those rotated cornfields most at risk to variant western corn rootworm larval injury.

If you have any questions about the information contained in Table 1, please don’t hesitate to give us a call or send us an email message.—Mike Gray, Kevin Steffey, and Kelly Cook

Clarification Regarding the 2004 Evaluations of Corn Rootworm Control Products

It has been brought to our attention that we applied Force 3G through SmartBox metering systems at a lower-than-recommended rate. The rate of application and average root ratings for Force 3G applied through SmartBox metering systems are presented in Table 1 in issue no. 22 (September 2, 2004) of the Bulletin. Because of a typographical error on our plot plans, we inadvertently applied Force 3G at a rate of 3 oz per 1,000 row feet instead of 4 oz per 1,000 row feet, as stated on the label. Amvac Chemical Corporation does not endorse the application of Force 3G at the reduced rate. We apologize for the mistake.—Ron Estes, Kevin Steffey, and Mike Gray

Does the 2004 Fall Flight of Soybean Aphids Help Us Forecast Their Potential for 2005?

We are completing our fourth full season of soybean aphids, and with each year completed we learn a little more about this invasive species. Thus far, after the wake-up call we received in 2000, soybean aphid populations have been very cyclic in Illinois—large densities in 2001, low densities in 2002, very high densities in 2003, very low densities in 2004. So what’s in store for 2005?

We have learned from David Voegtlin, entomologist at the Illinois Natural History Survey, that the fall flight of soybean aphids may provide some insight for the potential for soybean aphids for the next year. In the fall, soybean aphids leave their secondary host (soybeans) to fly to their primary host (buckthorn), where females mate with males to produce the eggs that overwinter. By sampling the population of flying soybean aphids, we obtain snapshots of their relative densities from one year to the next.

Nine suction traps are in place in Illinois to sample populations of flying soybean aphids. The rationale for and description of the traps are explained at http://www.ipm.uiuc.edu/fieldcrops/insects/soybean_aphids/suction_trap_network/.

The locations and operators of the traps also are provided. In the fall of 2002, Voegtlin observed a noticeable difference from 2001 in soybean aphid captures. In 2001, the suction traps captured virtually no soybean aphids in September. In 2002, the numbers of soybean aphids captured in September and October were noteworthy in suction traps located near DeKalb, Monmouth, Urbana, and Perry. The numbers of soybean aphids were very low. So in the two years following captures of low numbers of soybean aphids in the fall, significant infestations of soybean aphids were few and far between. In the one year (2003) following captures of relatively large numbers of soybean aphids in the fall (2002), an outbreak of soybean aphids occurred.

Will this pattern repeat itself over time? It’s too early to know for certain, but captures of noticeable numbers of soybean aphids in suction traps in the fall could very well portend significant infestations of soybean aphids the following year. This is especially true when populations of multicolored Asian lady beetles fluctuate in concert with populations of soybean aphids. In the falls of 2001 and 2003, numbers of multicolored Asian lady beetles, the most significant predator of soybean aphids, were very high—high enough to suppress soybean aphid populations the following year. In the falls of 2002 and 2004, numbers of these lady beetles were very low. The relative absence of multicolored Asian lady beetles in the spring and early summer of 2003 enabled soybean aphid populations to thrive. Will the same hold true for 2005?
To compare the numbers of soybean aphids captured in suction traps in 2001, 2002, 2003, and 2004, select the years of interest next to “See Trap Counts” at the aforementioned Web site. The charts displayed show the numbers of soybean aphids captured at each location during several weeks throughout each year.

So what do the numbers of soybean aphids captured in suction traps mean? Some words from Voegtlin about the captures during the week ending September 17 may be helpful: “About 1/3 to 1/2 of the catch is males. This migration is at least two weeks ahead of the 2002 flight and already we have about the same numbers that were collected that fall. There are . . . at least four more weeks of migration to go.

“I am not sure why the fall migrants are so early. In previous years, males were not collected until October. Perhaps [because] we have had a cool summer with some nights at or below 50 degrees, which is cool for late August and early September. I know that there are plenty of aphids on soybeans in far southern Illinois, but it may be that the temperature there has been high enough to prevent the population from developing these fall migrants. We know that when the photoperiod begins to drop below 14 hours, the development of these migrants will start; however, the response is often limited by higher temperature. I don’t believe there are any data to tell us how warm it must be to slow this process or how cool it must be to trigger it.”

At the time I wrote this article, the captures of soybean aphids for the week ending September 24 and October 1 had not been posted. However, Voegtlin has told us that the numbers of soybean aphids declined a bit during the week ending September 24. On the other hand, he also noted, “This is the first time since the traps have been in operation that we have seen fall migrants in every trap. In other words, fall migration is occurring throughout Illinois.”

The stage is being set for 2005. Based upon a very limited amount of data over time, the potential for significant infestations of soybean aphids in 2005 exists. However, please understand that I am emphasizing the word “potential.” Much can change between now and the soybean-growing season in 2005. In addition, higher temperatures in 2005 than we experienced in 2003 could significantly retard development of soybean aphid populations. Therefore, as is always the case with fluctuating insect populations, early and regular scouting will be the key to detecting infestations of soybean aphids in 2005.—Kevin Steffey

Introducing the Western Bean Cutworm

Historically, the western bean cutworm has been a pest in the western cornbelt. Over the past several years, the western bean cutworm has become established in Iowa. It has steadily moved from west to east, being discovered most recently in southeastern Iowa in 2004. The discovery prompted an entomology graduate student at Iowa State University to establish traps for the adults (moths) in both Illinois and Missouri in July 2004. The student reported finding five moths in a trap located in Warren County, Illinois, and one moth in each of three separate locations in Missouri. The captured western bean cutworms represent new state records for this species and a significant eastward expansion from the pest’s recent published historical distribution.

The western bean cutworm is a severe pest of both corn and dry beans, affecting both crop yield and quality. Unlike other cutworms, the western bean cutworm is a late-season pest of corn. It feeds primarily on corn ears, chewing and scarring kernels, predisposing the ear to fungal and mold infections.

Generally, only one generation of western bean cutworm occurs each year, with moth emergence beginning in July. Brown-colored adult moths are approximately 3/4 inch long, with a 1-1/2-inch wingspan. The forewings of the moth are brown with a white or cream-colored stripe that runs across the leading edge of each wing. Just below this stripe and about halfway across the wing is a white, circular spot. Farther away from the body, in line with the spot, is a white, crescent-shaped spot. The hind wings of the western bean cutworm are unmarked and light colored. After mating, females lay eggs on available host plants such as field corn, sweet corn, popcorn, and dry beans. Females also may lay eggs on tomatoes, nightshade, and ground cherry, although these are not preferred oviposition hosts. In corn, female western bean cutworms lay eggs primarily on the upper surfaces of the leaves. Fields attractive to western bean cutworms for oviposition are fields in which corn is tasseling or near tasseling and fields that have hybrids with upright leaf characteristics. Egg masses contain an average of 50 eggs, but numbers of eggs in masses range from 5 to 200. Eggs turn from white to tan to dark purple as they age, and larvae hatch within 5 to 7 days after the eggs are laid.

After hatching, the larvae feed on the shells of the eggs for about 10 hours before moving to other protected feeding sites. The larvae pass through five instars and feed on host plants for about 31 days. First instars are very mobile and may infest several host plants. As larvae develop, their color changes from dark brown (first instar) to light tan, with brown hatch markings on their backs becoming more distinct with age. When larvae develop to the third instar, they have three dark stripes just behind the head. This characteristic helps differentiate the western bean cutworm from other caterpillars feeding in cornfields.

Newly hatched larvae move to the corn whorls, where they feed on the flag leaf, tassel, and other yellow tissue. As corn tassels and silks, larvae move to and begin feeding on developing silks. Larvae feed directly on
masses or small larvae on the upper locations in each field. Look for egg first noticed. In corn, check 10 con-
should begin when adult moths are westernbean cutworm.

Iowa State University Western Bean has a monitoring system in place. The area. Currently, Iowa State University the western bean cutworm in your can also be used for the detection of (http://www.ipm.uiuc.edu/)

tor (http://www.ipm.uiuc.edu/).—

Pest Management & Crop Development Bulletin • No. 23 / October 8, 2004

Accumulated degree-days % moth emergence (begin May 1, base 50°F).

<table>
<thead>
<tr>
<th>Accumulated degree-days</th>
<th>% moth emergence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,319</td>
<td>25</td>
</tr>
<tr>
<td>1,422</td>
<td>50</td>
</tr>
<tr>
<td>1,536</td>
<td>75</td>
</tr>
</tbody>
</table>

Green in the Fields at Harvest

At about this time every year, we receive many questions from agricultu-
ral professionals seeking to identify the various weed species they are encountering in corn and soybean fields at this late time of the season. These questions are often posed by those involved in taking a final assessment of weed-control practices prior to harvest, but sometimes the calls originate during the harvest operation itself. Indeed, inquiries via cellular telephone from the cabs of combines are much more common than in previous years.

This year, the weed species we have been asked about most frequently, and which appears to be more prevalent at harvest this year compared with previ-
sous years, is hophornbeam copperleaf (Acalypha ostryiformia). We have dis-
cussed this species in previous edi-
tions of the Bulletin, as well as at county agronomy days and the Corn and Soybean Classic, but with the renewed interest that seems to be prevalent this fall, we thought it would be beneficial to review what we know about the biology of this species.

Hophornbeam copperleaf is a summer annual species in the Euphorbiaceae family. This plant family, also known as the Spurge family, includes several other problematic weed species, many of which have a milky sap that exudes from the stem or leaf petiole when it is cut. Hophornbeam copperleaf, however, does not contain the characteris-
tic milky sap of other Euphorbiaceae family members. The plant is indig-
enous to Illinois and most commonly found in the southern third of the state. Over the past several years, however, we have identified populations in corn and soybean fields progressively farther north in Illinois. In 2000 we identi-
ified a population in Tazewell County, and in 2001 we received a sample from a population in Lee County. Several other copperleaf species can be found in Illinois, and while most of them are not generally considered problematic in agronomic production systems, Virginia copperleaf (Aca-
lypha virginica) can be a troublesome weed species in southern Illinois.

Hophornbeam copperleaf has pubes-
cent cotyledons and true leaves with short hairs and finely toothed (ser-
rated) margins. The leaves are simple and alternate and somewhat heart-
shaped at the base. Additionally, a reddish coloration is often observed where the main leaf vein intersects the petiole. Hophornbeam copperleaf may sometimes be misidentified, especially during early vegetative development, as prickly sida (Sida spinosa). The leaf margins of prickly sida are more coarsely serrated than those of hop-
hornbeam copperleaf, and hophorn-
beam copperleaf does not have the small stipules (spines) in the leaf axils like prickly sida. Late in the year, many people tend to describe hop-
hophornbeam copperleaf as looking “like a hybrid between prickly sida and pigweed.”

Hophornbeam copperleaf is monoecious (both male and female flowers on the same plant), with stamineate (male) flowers produced on axillary spikes and pistillate (female) flowers produced on a long terminal spike. Seed pods of hophornbeam copperleaf are dehiscent (pods split open at maturity to release seed), and seeds appear to require warm temperatures for germination. Once emergence has begun, additional flushes of hophornbeam copperleaf frequently appear following precipitation. A recently published experiment reported that the average seed production of hophornbeam copperleaf plants growing alone (without competition) was about 12,518 seeds per plant, much greater than the average (980 seeds per plant) when grown with soybean.

Based on previous research we’ve conducted on this species, we know that the emergence characteristics of hophornbeam copperleaf are more atypical than most other summer annual weed species. Because seeds require warm temperatures for germination, it’s rare to observe emergence of this species prior to late May or early June. Usually there are several emergence events that might persist throughout June and into July. A well-developed crop canopy is beneficial in suppressing growth and development of hophornbeam copperleaf, but as crop senescence begins in late summer and more sunlight can penetrate through to the soil, another flush of the species can emerge.

Several have asked what went wrong with their herbicide program this year that allowed hophornbeam copperleaf to be present at harvest. While we can’t make an encompassing assessment of all possible herbicide programs, we can say that few (if any) herbicides are able to provide sufficient soil-residual activity to control the latest emergence event of hophornbeam copperleaf.

If you are interested in viewing pictures of hophornbeam copperleaf at various growth stages or in learning additional information on managing this weed species in corn and soybean, please visit the University of Illinois Weed Science Web site (http://weeds.cropsci.uiuc.edu/index.htm) and click on the “Extension” button to the left of the screen.—Aaron Hager and Dawn Nordby

New Crop and Weed Identification DVD

A new software product, the Interactive Encyclopedia of North American Weeds, may be of interest to you. It offers more than 2,400 photographs covering 447 of the most important weeds and crops in the United States and Canada. The illustrated glossary of 565 botanical terms is a program in itself! A unique illustrated interactive identification key now covers all of the weeds in the program. The professionally narrated lessons provide nearly three hours of interactive instruction on the basics of plant taxonomy needed to identify plants.

After 12 years of development, the program provides a balanced and fully integrated teaching and reference resource for weed, crop, and plant identification. The DVD is an excellent resource for teaching plant taxonomy and weed identification courses; basic botany, agronomy, and horticulture courses; and high school biology and vocational agriculture courses. A presentation feature allows an instructor or presenter to create a custom path through the program.

Professional agronomists, horticulturists, groundskeepers, landscapers, turf managers, gardeners, herbalists, botanists, and all manner of plant enthusiasts will enjoy the extensive descriptions, distribution maps, habitat key, “World of Weeds” weed history articles, and unique visual weed and crop identification key.

The best way to see whether the product might be of value to you is to view a demonstration weed home page and obtain more information on the DVD-ROM at the following link: http://www.thundersnow.com/weedid.htm.

The Interactive Encyclopedia of North American Weeds—Version 3 DVD-ROM can be ordered through the North Central Weed Science Society by clicking on the following link: http://www.ncwss.org/info/weedncwss.pdf. Or you can call Bob Schmidt directly to place an order at (217)352-4212. The price is $59.95, plus $5.00 shipping and handling.—Dawn Nordby and Aaron Hager

REGIONAL REPORTS

Northern Illinois

The region received about half an inch of rain on October 1, which did not slow harvest much. A killing frost occurred throughout the region on Monday evening October 4. Most areas have at least 50% of soybean acres harvested. Corn harvest varies within the region. A majority of the northwest has about 15% of corn acres harvested, while the southeast and southwest have 30% or more.

Other activities occurring over the last 2 weeks include wheat seeding and alfalfa harvest.

West-Central Illinois

A truly remarkable crop year is quickly coming to an end with an almost perfect growing season, except for well-above-normal rainfall in some areas during the month of May. Harvest has progressed rapidly because prolonged warm, dry, sunny weather has allowed it to continue with no delays. The extremely dry weather, however, has been partially blamed for several combine fires.

Very high corn and soybean yields have been reported, with yields consistently exceeding 200 and 60 bushels per acre, respectively. In some small areas, however, severely lodged corn, due to rootworm or wind damage, has
been reported, which caused some harvesting problems. Several producers have already requested the 2004 evaluation of rootworm-control products and are considering different rootworm-control strategies for next year.

Tillage and fertilizer and lime applications have begun in preparation for the 2005 crop year. Nitrogen application is being delayed until soil temperature decreases.

Wheat planting has begun and will be completed soon because of the limited acreage in the region.

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