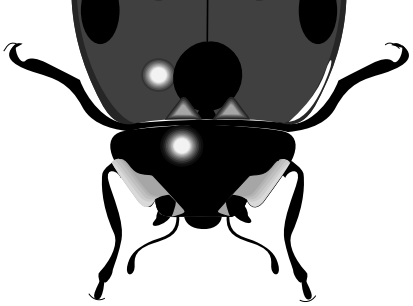

PEST MANAGEMENT & CROP DEVELOPMENT BULLETIN

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Executive editor: Kevin Steffey, Extension Entomologist

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For subscription information, phone 217.244.5166, or e-mail acesnews@uiuc.edu

Also in This Issue

A New Look for *the Bulletin* on the Web

At last, the *Pest Management & Crop Development Bulletin* has morphed into *the Bulletin—pest management and crop development information for Illinois*, at least on the Web. For at least three years, I have indicated that *the Bulletin* on the Web was being revised, and finally all of the pieces have fallen into place, giving rise to a new look and improved features. Subscribers who receive the *Pest Management & Crop Development Bulletin* in the U.S. mail will see the same format we have used for several years. And the content of the printed and Web versions of the newsletter will be the same for the most part (at least the text in the articles). However, the Web version will have additional features, and more features undoubtedly will evolve over time.

The Web version of *the Bulletin* has been incorporated into the Department of Crop Sciences' IPM Web site—http://www.ipm.uiuc.edu/bulletin—and will be located on a new server. For the time being, past electronic issues of the *Pest Management & Crop Development Bulletin* will be housed on a different server. We will provide access to past issues with a direct link. However, throughout the course of 2004, the past issues will be moved to our server and will be reformatted using the new design.

As in the past, you will be able to subscribe to receive e-mail notification of the availability of the newest issue of *the Bulletin* on the Web, which usually is posted on Thursday afternoons. The "subscription" is free, and completing the subscription form takes only a couple of minutes. The e-mail notification provides thumbnail summaries of each article in the new issue.

Clicking on the "Current Issue" tab takes you to a page that includes a list of article titles (on the right), each with a thumbnail summary. You also will find a button "PDF: Print-Friendly Version" that will enable you to print the entire issue. On the same page, you will see "Feature" within an orange box (on the left). We will use this to spotlight a new feature of *the Bulletin*, other educational materials or events, or articles that should stand the test of time. A "Feature" likely will remain posted for more than one week.

Clicking on the "Resources" tab takes you to a page from which other useful resources can be accessed (e.g., other states' newsletters, the *Agronomy Handbook*, the current issue of the *Illinois Agricultural Pest Management Handbook*). As we learn about other resources, we will add them to the page. Don't hesitate to contact us if you encounter a resource that readers of *the Bulletin* might find useful.

We also will have a "Search" function that actually works. Only the 2004 issues will be searchable for a while, but after the past issues are moved to the new server, they also will be searchable—by author, by subject area, by keyword, and by a word or words in the text.

On the home page on occasion, you will encounter "Attention" in an orange box, which indicates an article focusing on a hot topic with a distinct need for timeliness. For example, some of the articles we wrote during the soybean aphid outbreak in 2003 would have qualified for "Attention." On occasion, these articles are published in between print versions of *the Bulletin*.

Please provide us with feedback on the new look and behavior of *the Bulletin* online. We expect it to evolve over time, and you can help shape that evolution by letting us know what works, what doesn't work, what features you like, and what features you don't. We intend to make *the Bulletin* as user-friendly as possible, and your input will help steer us in the right direction.

Starting with the next issue of *the Bulletin* (issue no. 2, April 2), we will publish weekly issues through mid-August, with a team of Extension specialists and educators writing articles to keep you informed of pest situations and crop development throughout the state. On behalf of all of the authors who contribute to *the Bulletin*, I thank you for your continued support of our efforts and your interest in the information we provide. We look forward to hearing from you (reports from the field are most welcome), working with you, and providing the most current and useful information possible. Let's all hope that we have a terrific growing season in 2004.—*Kevin Steffey*

Internet Source for Daily Pest Degree-Days and Growing Degree-Days in Illinois

A new and exciting feature on the IPM Web site will provide you the ability to determine degree-day accumulations for selected pests throughout the season. The development of the project was a collaborative effort among scientists with the Illinois State Water Survey and the Department of Crop Sciences at the University of Illinois. In particular, I wish to thank Bob Scott (Illinois State Water Survey) and Kelly Cook (Extension IPM—Entomology, Department of Crop Sciences) for providing leadership for the project. The end result will enable you to combine daily weather data and pest information to generate Web pages showing current degree-day totals in Illinois associated with pest and crop development.

Following is some of the text from a recent press release prepared by Bob Scott: "The agricultural community in Illinois now has a new Internet tool to track growth cycles of agricultural pests and Illinois crops using daily degree-day totals. This collaborative effort between scientists from the Illinois State Water Survey (http://www.sws.uiuc.edu/), a division of the Illinois Department of Natural Resources, and the Integrated Pest Management Program, Department of Crop Sciences (http://www.cropsci.uiuc.edu/) at the University of Illinois, combines daily weather data and pest information to generate Web pages that show current degree-day totals in Illinois associated with pests and crop development.

"Growth of pests and crops in Illinois can be tracked and projected by maintaining an account of the 'heat' accumulated during each growing season. This process involves comparison of daily maximum and minimum temperatures to a base temperature, specific for a particular pest or crop, above which development of the pest or crop will occur. Computer algorithms were developed for tracking 30 agricultural pests and also determining growing degree-day totals for corn and cold weather crops.

"Degree-day accumulations for some pests, regardless of their location in Illinois, have a specific calendar day when heat tracking begins, such as January 1 each year. Local accumulations for other pests and those for crops are tied to specific, user-provided events: first spring trapping of adult pests, sighting of insect eggs, planting date, etc. One- and two-week degree-day projections, based on climate records at each site, also are included. The tool also produces maps of degree-day totals and projections for the entire state where appropriate.

"This information is computed from data collected at 19 weather sites across Illinois and is specific for those locations. These data are valuable in helping users determine when to monitor their fields for approaching stages of pest development and with the subsequent operational decisions that follow.

"All degree-day information is computed from data collected through the day just prior to the day each user accesses the system. In general, up-to-date information will be available by 4:00 a.m., seven days a week. The URLs are http://www.sws.uiuc.edu/warm/agdata.asp (pests and crops) and http://www.ipm.uiuc.edu/degreedays (pests)."

If you access the degree-day accumulation tool through the IPM Web site, you first will encounter a page that explains insect growth and development, with specific references to minimum and maximum developmental thresholds. Kelly Cook prepared all of the information associated with this page. Clicking on "Degree-Day Calculator" in the upper right corner takes you to a Water and Atmospheric Resources Monitoring (WARM) Web page that enables you to select the "Degree-Day Calculator" or "Degree-Day Maps." By selecting "Degree-Day Calculator," you will be able to select from a list of pests (e.g., alfalfa weevil), select a site from the map (e.g., Dixon Springs), and calculate the accumulated degree-days through the end of the preceding day. By selecting "Degree-Day Maps," you can choose from a small list of insects and obtain maps that show current totals, one-week projections, and two-week projections for accumulated degree-days for the state of Illinois. Both a map and a table are displayed. The maps are the same as the maps we have been printing in *the Bulletin* for years.

We hope that this new feature is useful for you. Because of its availability, we no longer will provide printed maps in *the Bulletin*. However, we will refer to accumulated degree-days in articles written about the insect in question. Let us know what you think, and don't hesitate to contact us if you encounter any problems. Happy accumulating!—*Kevin Steffey*

INSECTS

Hines Captures the First Black Cutworm Moth of 2004

Once again, Ron Hines gets the prize for capturing the first black cutworm moth of the year. Ron, a senior research specialist at the University of Illinois Dixon Springs Agricultural Center, monitors flights of various species of moths throughout the year. His deep-southern location gives him an advantage for capturing the first of several species, including the black cutworm, so his prize in 2004 will be the same as in 2003: Thanks, Ron!

Ron captured one black cutworm moth in Pope County on March 9 when a warm front passed through his area. He also has black cutworm pheromone traps (and other traps) in Jefferson, Massac, Pulaski, and St. Clair counties this year, an expanded network from previous years. As always, the details can be found on "The Hines Report" at http://www.ipm.uiuc.edu/pubs/hines_report/index.html. Throughout the season, you will be able to review weekly updates of captures of armyworms, black cutworms, corn earworms, European and southwestern corn borers, fall armyworms, and Japanese beetles.—*Kevin Steffey*

Warmer Winter for Corn Flea Beetles: Early-Season Stewart's Wilt Predictions

Variable winter temperatures across the state have resulted in varying predictions of Stewart's wilt in corn this spring. Overall, the average winter temperatures of December, January, and February were warmer than the average winter temperatures of the previous year. What does this mean with respect to corn flea beetles and Stewart's wilt?

Corn flea beetles are the primary vector of Stewart's wilt. *Erwinia stewartii*, the bacterium that causes Stewart's wilt, survives the winter in the gut of the corn flea beetle. Survival of the corn flea beetle is dependent on winter temperatures. Warmer winters result in greater survivorship of beetles, increasing the potential for Stewart's wilt, which can be predicted using the average temperature of December, January, and February (Table 1).

Corn flea beetles become active in the spring when temperatures rise above 65˚F. The beetles feed on and infect seedling corn plants. The bacterium can spread systemically throughout the plant. There are two phases of Stewart's wilt: the seedling wilt phase and the leaf blight phase. The seedling wilt stage occurs when seedlings become infected at or before the V5 stage. The growing point is easily infected. The vascular system becomes plugged with bacterium, causing the seedling to wilt and die. Infections of older corn plants usually result in development of the leaf blight phase of Stewart's wilt, characterized by long, yellow to chlorotic streaks, with wavy margins along the leaves. Although most commercial field corn hybrids are resistant to Stewart's wilt, the disease is still a concern for susceptible seed corn inbreds and sweet corn hybrids.

Table 2 shows estimates of early-season Stewart's wilt based on the recent winter temperatures from the Midwest Regional Climate Center. Remember, however, that these are only predictions; numbers of surviving corn flea beetles are not known. More information on the corn flea beetle and Stewart's wilt can be found in the corn flea beetle fact sheet (http://www.ipm.uiuc.edu/fieldcrops/insects/corn_flea_beetle/index.html) and the sweet corn disease nursery (http://sweetcorn.uiuc.edu/stewarts.html).—*Kelly Cook*

Insect Monitoring Network

Check on the arrival of insect pests in your area! The Insect Monitoring Network (http://www.ipm.uiuc.edu/fieldcrops/imn/index.html) will soon be reporting data for the 2004 growing season. This Web site provides a database of up-to-date information on black cutworm, corn earworm, and European corn borers caught in pheromone traps. Traps are monitored and weekly counts are submitted voluntarily by Extension educators and cooperators located throughout the state. The Web site also offers links to additional sources of information that provide current information on insect pests in Illinois.

We would like to thank the cooperators who worked with us last year and who have already signed on for another season. Your support is greatly appreciated! We are continually seeking addi-

Table 1. Projected risk of Stewart's wilt based on the average temperatures of December, January, and February.

Avg temperature of December, January, and February	Probability of early-season wilt	Probability of late-season blight
<27° F	Absent	Trace, at most
27–30° F	Light	Light to moderate
30–33° F	Moderate	Moderate to severe
>33° F	Severe	Severe

Table 2. 2004 early season Stewart's wilt predictions.

City	*Avg temperature December 2003 through February 2004*	*Potential of early-season disease*
St. Charles	25.2° F	Absent
Moline	27.2° F	Light
Kankakee	27.3° F	Light
Peoria	28.9° F	Light
Urbana	29.3° F	Light
Springfield	30.5° F	Moderate
Mt. Vernon	32.6° F	Moderate to severe
Belleville	35.8° F	Severe
Carbondale	34.7° F	Severe

tional volunteers to become part of our network of cooperators. If you are interested in providing moth trap counts of black cutworm, corn earworm, or European corn borer, please contact me at (217)333-6652 or kcook8@uiuc.edu.—*Kelly Cook*

Searching for Wireworms: The Use of Solar Bait Stations

Several species of wireworms may attack cornfields. Though considered secondary insects, wireworms may cause considerable economic damage to corn. These soil-inhabiting insects cause early-season injury by boring into and hollowing out seeds, preventing germination. They may also bore into the base of seedlings just below the soil line, injuring or killing young plants. Wireworms may be clustered in scattered areas throughout the field. Spotty corn stands may be evidence of wireworm infestations due to lack of germination or wilted and dying seedling plants.

Wireworm infestations are generally related to crops or weeds that grew in the damaged field 2 to 4 years before. Cornfields planted after small grains (including corn planted after double-cropped soybeans) and grass pastures or grass hay often exhibit the greatest potential for wireworm problems. Wireworms may also be concentrated in low, poorly drained areas of fields or high, drier areas of the field, depending on the species.

Postemergence insecticides or "rescue treatments" are not effective for wireworm control. Ultimately, the only way to know for certain whether wireworms pose a threat is to look for them before planting corn. Efforts to aid the search for wireworms led entomologists at the University of Missouri to develop the idea of solar bait stations (Figure 1). These bait stations are simple to create, and the results are easy to interpret. Although several studies over the years have focused on finding a better way to detect wireworms, solar bait stations have continued to win out.

Follow this procedure for establishing bait stations 2 to 3 weeks before the anticipated planting date:

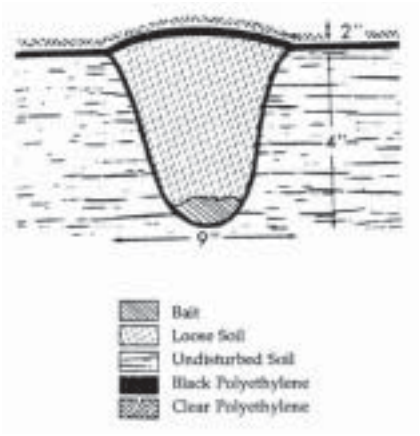

Figure 1. Cross-section of a solar bait station for sampling for wireworms.

1. Dig a hole about 3 to 4 inches deep and 9 to 10 inches wide at the soil surface.

2. Bury 1/2 cup of a mixture of equal parts untreated corn and wheat at the bottom of the hole. The germinating seeds attract wireworms.

3. Fill the hole and mound a "soil dome" over the covered bait to serve as a solar collector and to prevent standing water.

4. Cover each mound with an 18-inch-square sheet of black plastic, topped with a 1-yard-square sheet of clear plastic, and cover the edges with soil to hold the plastic sheets down. The plastic collects solar radiation and speeds germination of the corn and wheat. A cross-section of a wireworm bait station is illustrated in Figure 1.

5. A few days before planting, remove the plastic and soil covering the bait and count the number of wireworm larvae found at each station. Wireworm larvae are 1/2 to 1-1/2 inches long and usually are hard, smooth, dark reddish brown, and wirelike. However, some species are soft-bodied and are white or yellowish.

Table 3. Soil insecticides and seed treatments labeled for control of wireworm in corn.

Insecticide	*Amount of product per acre*	*Placement*
Soil insecticides		
Aztec 2.1%G*	6.7 oz/1,000 ft row	Band, furrow
Aztec 4.67G*	3 oz/1,000 ft row	Band, furrow
Capture 2EC*	0.15 to 0.3 oz/1,000 ft row	Band, furrow
Capture 2EC*	3 to 4 oz	Broadcast—preplant incorporated
Counter CR*	6 oz/1,000 ft row	Band, furrow
Empower*	3.2 to 8 oz	Band, furrow
Force 3G*	4 to 5 oz/1,000 ft row	Furrow
Fortress 2.5G*	6 to 7.5 oz/1,000 ft row	Furrow
Fortress 5G*	3 to 3.75 oz/1,000 ft row	Furrow
Lorsban 4E*	4 pt	Broadcast—preplant incorporated
Lorsban 15G	12 oz/1,000 ft row	Furrow
Pounce 1.5G*	8 to 16 oz/1,000 ft row	Furrow
Pounce 3.2EC*	0.3 oz/1,000 ft row	Furrow
Regent 4SC*	0.24 oz/1,000 ft row	Furrow
Thimet 20G*	6 oz/1,000 ft row	Band
Warrior*	1.92 oz/acre	Furrow
Seed treatments		
Cruiser	See product label.	On seed
diazinon + lindane	See product label.	On seed
imidacloprid	See product label.	On seed
lindane	See product label.	On seed
permethrin	See product label.	On seed
Poncho	See product label.	On seed
ProShield with Force ST	See product label.	On seed

*Restricted use pesticide.

6. Place about a dozen bait stations per 40 acres. Your placement of the bait stations should represent different areas of a field.

If you find an average of one or more wireworms per bait station, consider the use of a registered seed treatment or soil insecticide (see Table 3 in the 2004 *Illinois Agricultural Pest Management Handbook*). A hopper-box seed treatment (e.g., Agrox Premiere, Kernel Guard) will protect the seeds but will not prevent wireworms from attacking the stem beneath the soil surface. If your baiting procedure pinpoints wireworms in a specific area of the field, consider treating only the infested area rather than the entire field. You'll save money by reducing the amount of insecticide applied in the field.—*Kelly Cook, Mike Gray, and Kevin Steffey*

Soybean Aphids in 2004?

The outbreak of soybean aphids in 2003 left a bad taste in the mouths of soybean producers, even through the winter. Many people are wondering whether this pest will return in force in 2004 or will be less than obvious, as it was in 2002. Although we have learned quite a bit about soybean aphids since 2000, when the insect first was discovered in North America, we still can't predict its occurrence. However, some clues suggest that soybean aphids may not be as troublesome in 2004 as they were in 2003.

In 2001, Dr. David Voegtlin, aphid research specialist in the Center for Economic Entomology in the Illinois Natural History Survey, established a network of suction traps to enable us to monitor the flights of soybean aphids throughout any given season. The captures of soybean aphids in these traps have been pretty revealing, and some trends may be starting to develop. For example, captures of flying soybean aphids in the fall of 2002 were noticeable, whereas there were no captures of flying soybean aphids in the fall of 2001. Because an outbreak of soybean aphids occurred in 2003 and soybean aphids were few and far between in 2002, the capture of aphids during the fall may provide some insight into the potential for infestations to develop the following season. It is interesting to note that very few aphids were captured in the suction traps during the fall of 2003. You can examine the records of captures of soybean aphids at http://www.ipm.uiuc.edu/fieldcrops/insects/soybean_aphids/suction_trap_network/index.html.

The presence or relative absence of the multicolored Asian lady beetle, the primary predator of soybean aphids, also may play a role in regulating populations of soybean aphids. Very few of these lady beetles were noted during the fall of 2002; however, we were subjected to hordes of them in 2003. It seems obvious that when soybean aphids are scarce (as they were in 2002), multicolored Asian lady beetles also are scarce (less food to sustain their populations). As a consequence, soybean aphids were able to establish populations and begin population growth in the relative absence of lady beetles early in 2003. On the other hand, when soybean aphids are plentiful (as they were in 2003), multicolored Asian lady beetles also become plentiful, after a lag time during the summer. This is a classic predator–prey relationship.

The relatively low numbers of soybean aphids captured in suction traps in the fall of 2003 and the presence of very large numbers of multicolored Asian lady beetles suggest that soybean aphids may not get off to a fast start in 2004. However, the weather conditions during the summer of 2004 may encourage the growth of soybean aphid populations in some areas. Soybean aphid populations thrive when conditions are relatively cool (as they were during the summer of 2003), and their population growth slows when temperatures are high.

We will be monitoring aphid captures in the suction traps and aphid densities in soybean fields throughout the season. At the first appearance of soybean aphids, we will let you know when and where. However, you should not overreact to the first occurrence of soybean aphids in soybean fields in your area. Their populations will bear watching, but spraying an insecticide too early may cause more problems than it will solve.

If you are interested in perspectives on soybean aphids from four different states (Illinois, Iowa, Minnesota, and Wisconsin), you can view slide sets posted at http://www.ipm.uiuc.edu/fieldcrops/insects/soybean_aphids/workshop/index.html. These slides were used during a February 5 workshop delivered by data conference by Drs. David Voegtlin, Marlin Rice (Iowa State University), Ken Ostlie (University of Minnesota), Eileen Cullen (University of Wisconsin), and me. Approximately 800 people at 60 different sites in the four states participated in the program. In future issues of *the Bulletin*, we will borrow liberally from the information in these slide sets and provide updated information as research projects generate results.—*Kevin Steffey*

Seed Treatments and Bt Corn Rootworm Hybrids: Perspectives on Control and Influence on Nontarget Populations

Considerable interest this spring surrounds the anticipated increased use of systemic insecticidal seed treatments Poncho (clothianidin) and Cruiser (thiamethoxam) for corn rootworm (1.25 mg per kernel rate for both products) and secondary soil insect control (0.25 mg per kernel for clothianidin and 0.125 mg per kernel for thiamethoxam). These nicotinoid products, as the name suggests, are chemically related to the toxin found in tobacco known as nicotine. They are effective and persistent nerve poisons that interfere with the transmission of nerve impulses. Results from our corn rootworm insecticide efficacy trials last year (http://www.ag.uiuc.edu/cespubs/pest/articles/200322d.html) suggest that Poncho and Cruiser, when used at

the higher corn rootworm rates, performed at acceptable levels in Urbana. Results for these products in DeKalb and Monmouth were somewhat inconsistent. To date, our message regarding the use of seed treatments for corn rootworm control has been straightforward regarding their inconsistency as compared with some of the traditional granular soil insecticides. However, we recognize that because of convenience and the perception that these seed treatments provide root protection under most field conditions, producers are eager to embrace these products. We will continue to learn more about their performance under a wide variety of environmental conditions. In 2003, our insecticide efficacy trials were planted late by producers' standards, and we received generous rainfall throughout the growing season. It remains uncertain how well the nicotinoid seed treatments will perform under drier soil and earlier planting conditions.

An article published in the December 2003 *Journal of Economic Entomology* reported the results of a 5-year (1997–2001) experiment conducted in northeastern Spain on the impact of imidacloprid (Gaucho) on nontarget arthropod populations in corn. Imidacloprid is a nicotinoid insecticide. Corn seed was treated with Gaucho 35FS (4.9 g [AI]/kg). Nontarget arthropod densities were estimated by visual counts as well as pitfall traps in corn plots in which seed was treated with imidacloprid. Estimates of arthropod densities also were determined in untreated corn plots. The check plots had not been treated with soil insecticides since 1992. The corn plots in which imidacloprid was used had been previously treated with carbofuran. Based on visual counts, densities of spiders (Araneae), lady beetles (Coccinellidae), and rove beetles (Staphylinidae) were not affected by imidacloprid. Ground beetle (Carabidae) numbers were greater in untreated plots in only one year of this study. Rove beetle densities were lower as measured by pitfall traps in plots treated with the seed treatment. The numbers of ground beetles and spiders caught in pitfall traps did not significantly differ between treated and untreated plots. We need to continue studies of this type and generate additional data from multiple locations, but these initial results are encouraging.

In addition to increasing our knowledge of potential effects of nicotinoid products on beneficial insects, we need to continue gathering field data regarding the use of Bt corn rootworm hybrids and their potential influence on nontarget arthropods. In August 2003, a team of entomologists at Kansas State University published an article in *Environmental Entomology* titled "Effect of Bt Corn for Corn Rootworm Control on Nontarget Soil Microarthropods and Nematodes." In 2000, Bt (MON 863, Cry3Bb1 toxin) and non-Bt corn hybrids were established at eight experimental sites in Kansas. The following season, three experimental locations in Kansas were used for this study. Soil samples were taken in Bt plots and non-Bt plots at three different points in the season (early, mid, and late season). The researchers reached the following conclusion: "In general, numbers of soil mites (Prostigmata, Mesostigmata, and Oribatei), Collembola, and nematodes were similar in soil planted with Bt corn and soil planted with its isoline." Although we believe that many additional long-term ecological studies are warranted with respect to the potential influence of transgenic corn rootworm hybrids on nontarget arthropods, results from this Kansas study, similar to the previously discussed paper, also are encouraging.

Please share with us your experiences with these new seed treatments and transgenic corn rootworm hybrids during the 2004 growing season. We have much to learn with these relatively new technologies.—*Mike Gray*

Development of Economic Thresholds: Show Us the Science

Soon after the variant western corn rootworm began to wreak havoc on first-year cornfields across east-central Illinois in 1995, we began plans to develop a sampling protocol and an economic threshold for producers to use in predicting the likelihood of economic larval infestations in rotated corn. We were fortunate to have the support of C-FAR funding and the generous cooperation of many producers. After several years of on-farm research that involved a large team of entomologists, graduate students, producers and Extension educators, we developed an economic threshold that was based on the deployment of yellow sticky traps (Pherocon AM traps) in soybean fields. We submitted the results of our research to the scrutiny of other scientists through the peer review process and ultimately published our findings in the *Journal of Economic Entomology* (February 2001). While the use of Pherocon AM traps in soybeans and the economic threshold (5 beetles per trap per day) do not explain more than 27% of the variation in corn rootworm larval injury in first-year cornfields, they do represent the only science-based approach that we have seen published to date on this vexing challenge. To date, producers have largely relied on these traps in areas of the state in which the variant western corn rootworm is new and expanding its range. Use of Pherocon AM traps in regions of Illinois where the variant western corn rootworm is well established is noticeably lacking. Instead, the common management approach is simply to use a soil insecticide each spring and assume that all first-year cornfields support an economic density of corn rootworm larvae. We know that this is not the case. In the early 1990s, we confirmed that only about 50% of continuous cornfields across northern Illinois had economic infestations of corn rootworm larvae. Despite this information, over 90% of these corn acres were treated each spring with a soil insecticide. Recent on-farm surveys of corn rootworm larval damage in first-year cornfields also indicate that not every field warrants an insecticide treatment, even in the "heart" of the problem area.

Some final thoughts—there continues to be considerable interest about the use of broadcast insecticidal treatments in soybean fields to suppress egg laying by variant western corn rootworm adults. We have argued and continue to argue against this approach. Research conducted at the University of Illinois over a 3-year period (1999 to 2001) indicates that egg laying in soybean fields occurs over a protracted period beginning in early July throughout August. Oviposition was 10% complete in soybean fields (Iroquois County) in 1999 through 2001 on July 19, 20, and 25, respectively. By July 31, 30, and August 10, egg laying was 50% complete for each of these years. Egg laying was 90% complete by August 15, 12, and 26 in soybean fields in 1999, 2000, and 2001, respectively. These data clearly substantiate the variation in the timing of egg laying in soybean fields (varies from year to year) and the large length of time in which oviposition occurs. Spraying soybean fields to suppress egg laying by the variant western corn rootworm in late July may prove futile as egg laying persists even into late August and early September. Multiple broadcast treatments of insecticides to soybean fields does not appear to be an attractive option, particularly when one considers the potential harmful effects on nontarget populations. Reductions in beneficial insect densities may trigger an outbreak of certain pests, such as the soybean aphid. So, be very leery of economic thresholds suggesting that if western corn rootworm densities reach a given level per square foot in soybean fields, treatments may be warranted. Show us the science to support this recommendation.—*Mike Gray and Kevin Steffey*

WEEDS

Corrections to the 2004 *Illinois Agricultural Pest Management Handbook*

In Chapter 2, page 43, the components of Basis Gold should be 1.3% rimsulfuron + 1.3% nicosulfuron + 86.9% atrazine. Also, in chapter 2, page 97, the premix calculations for Backdraft SL 1.35L are incorrect. If you applied 2.5 pts of Backdraft, you have applied 0.094 lb a.e. imazaquin and 0.56 lb a.e. glyphosate.

Other corrections to the handbook include changes in formulations of a few herbicides. These corrections are addressed in "Product Updates in Weed Management".—*Dawn Nordby*

Product Updates in Weed Management

Herbicide changes for 2004 consist primarily of formulation and label changes. No new herbicide active ingredients are expected to be labeled during the 2004 growing season. The following product changes for 2004 are presented by manufacturer.

BASF Corporation

Prowl H_2O is a new water-based formulation of pendimethalin. This new formulation contains 3.8 pounds of active ingredient per gallon (Prowl EC contains 3.3 pounds of active ingredient per gallon) and has less odor than the EC formulation. Stains on clothing, equipment, and so on should be easier to remove. The manufacturer reports that Prowl H_2O washes off surface residue easier and has less volatility than the EC formulation. Labeled uses for Prowl H_2O and Prowl EC are virtually identical; exceptions include differences in application rates in corn and soybean (due to differences in amount of active ingredient per gallon), no time interval specified to incorporate the H_2O formulation when used on soybean (the EC formulation specified to incorporate within 7 days after application), and differences in the feeding/grazing interval when used on corn (21 days after application for the H_2O formulation, 12 days for the EC formulation).

Distinct 70WDG (dicamba + diflufenzopyr) is now labeled for postemergence applications on popcorn. Before applying to popcorn, verify the selectivity of Distinct on the popcorn hybrid with your local seed company or supplier.

Bayer CropScience

Equip 32WDG (foramsulfuron + iodosulfuron), first commercialized during the 2003 growing season, is used for postemergence control of weed species in all types of field corn. Equip should not be applied to sweet corn, popcorn, or corn grown for seed. Equip is a pre-mix product containing the same active ingredient of Option (foramsulfuron) and iodosulfuron for improved control of certain broadleaf weed species. Broadcast applications can be made when corn is zero to12 inches high or in the emergence through V4 growth stage, whichever is more restrictive. Equip should be applied at 1.5 ounces per acre; only one application per growing season is allowed. Methylated seed oil plus a nitrogen fertilizer is the preferred additive system.

Equip will control several grass and broadleaf weed species. The 1.5-ounce use rate of Equip contains slightly less foramsulfuron than the same rate of Option, so control of certain grass species (woolly cupgrass, yellow foxtail, green foxtail) may be less with Equip than with Option.

Define 4SC (flufenacet) is a new liquid formulation that will eventually replace the 60DF formulation. Application rates of Define 4SC will range from 15 to 25 fluid ounces per acre in corn or 8 to 14 fluid ounces per acre in soybean.

Dow AgroSciences

Keystone LA (acetochlor + atrazine) is a premix containing 4 pounds of acetochlor and 1.5 pounds of atrazine per gallon. Keystone LA can be applied to field corn, production seed corn, silage corn, and popcorn up to 30 days before planting, preplant incorporated, preemergence, or postemergence up to 11-inch-tall corn. Application rates vary according to soil texture and organic matter content,

tillage system, and application timing and range from 1.6 to 3 quarts per acre. An application rate of 2 quarts per acre provides 2 pounds of acetochlor and 0.75 pounds of atrazine.

Stinger (clopyralid) was registered for use in sweet corn and popcorn during 2003. Applications of 1/3 to 2/3 pint per acre can be made to popcorn no taller than 24 inches or sweet corn no taller than 18 inches. Do not apply Stinger within 30 days of harvest for ears and forage and 60 days of harvest for stover.

Other label changes from Dow AgroSciences include the following: the rotational interval for oats was reduced from 30 months (plus a successful bioassay) to 9 months for *FirstRate*, and methylated seed oil is an approved additive for postemergence applications of *Hornet*.

DuPont

The *Assure II (quizalofop)* label has been modified to provide use directions for control of glyphosate-resistant volunteer corn. Several supplemental labels have been incorporated into the Section 3 *Canopy XL (chlorimuron + sulfentrazone)* label, as well as changes in language related to rotational intervals.

Monsanto

IntRRo (alachlor) is very similar to Lasso. One notable difference is that IntRRo is labeled for use in soybean and sorghum (safened seed required) but is *not* labeled for use in corn.

Roundup Original Max (glyphosate) contains 5.5 pounds per gallon of the potassium salt of glyphosate (4.5 lb a.e./gallon). The formulation contains a "built-in" additive system, but additional surfactant can be added under certain conditions. A use rate of 22 fluid ounces per acre provides the equivalent of 0.75 pound acid equivalent per acre.

Syngenta

Callisto (mesotrione) label changes include reducing the maximum amount allowed per acre per season from 10.7 to 7.7 fluid ounces and modifying the rotational intervals for alfalfa, soybeans, and sorghum to 10 months from 18 months, next year, and next year, respectively.

Gramoxone Max (paraquat) is now labeled for preharvest applications in field corn, popcorn, and sweet corn. Application rates range from 0.8 to 1.3 pints per acre, and all applications should include a nonionic surfactant. Gramoxone Max should be applied after the black layer has formed at the base of the corn kernels and at least 7 days prior to harvest.

Lumax (mesotrione + metolachlor + atrazine) label changes include modifications in rotational intervals for oats (next year), rye (4.5 months), and alfalfa and clover (18 months) from previous intervals of 2 years for each crop.

Camix 3.67L (mesotrione + metolachlor) is labeled for use in Illinois. Camix contains 3.34 pounds of *S*-metolachlor and 0.33 pound of mesotrione per gallon. Application rates range from 2 to 2.4 quarts per acre, and Camix may be applied from 14 days prior to planting through 5-inch-tall corn.

*Expert 4.88L (*S*-metolachlor + atrazine + glyphosate)* can be applied to corn or sorghum (grain or forage, safened seed required) at 2.5 to 3.75 quarts per acre. Expert may be applied from 30 days before planting but before crop emergence. Postemergence applications can be made to glyphosate-resistant corn up to 12 inches in height.

Touchdown Total (glyphosate) contains 4.17 pounds acid equivalent formulated as the potassium salt of glyphosate with the "IQ" built-in additive system. Common application rate is 1.5 pints per acre.

Touchdown HiTech (glyphosate) contains 5 pounds acid equivalent formulated as the potassium salt of glyphosate without the "IQ" additive system, so applicators can include their own spray additives.

Syngenta will be introducing a new formulation of *Boundary (metolachlor + metribuzin)* during 2004. *Boundary 6.5EC* has improved storage characteristics and eventually will replace the 7.8EC formulation.

Valent

Gangster V (flumioxazin) and FR (cloransulam) is a new co-pack product combining the active ingredients of Valor 51WDG and FirstRate 84WDG. Use guidelines and restrictions on the Gangster V label are very similar to those listed on the Valor label, while the use guidelines and restrictions on the Gangster FR label are very similar to those on the FirstRate label.

Valor SX is a new formulation of the same active ingredient contained in Valor 51WDG.

Others

Arrow (clethodim), manufactured and marketed by Makhteshim-AGAN of North America (MANA), contains the same active ingredient as Select for postemergence control of grasses.

Stalwart C, manufactured and marketed by Sipcam Agro, contains 7.8 pounds of metolachlor per gallon (similar to Dual), while **Stalwart Xtra** contains 2.4 pounds of metolachlor and 3.1 pounds of atrazine (similar to Bicep).

Blanket (sulfentrazone) is marketed by Rosen's and is a similar formulation toAuthority 75DF and Spartan 75DF. Labels of Blanket and Authority are similar. However, the Blanket label allows application rates as high as 8 ounces per acre (5.3 ounces is the maximum rate of Authority).

Volley is marketed by Rosen's and contains 6.4 pounds of acetochlor (similar to Surpass), while *Volley ATZ* contains 3 pounds of acetochlor and 2.25 pounds of atrazine (similar to Surpass 100). *Volley ATZ Lite* contains 4 pounds of acetochlor and 1.5 pounds of atrazine.—*Aaron Hager*

REGIONAL REPORTS

Extension center educators, unit educators, and unit assistants in northern, west-central, east-central, and southern Illinois prepare regional reports to provide more localized insight into pest situations and crop conditions in Illinois. The reports will keep you up to date on situations in field and forage crops as they develop throughout the season. The regions have been defined broadly to include the agricultural statistics districts as designated by the Illinois Agricultural Statistics Service, with slight modifications:

- North (Northwest and Northeast districts, plus Stark and Marshall counties)
- West-central (West and West Southwest districts, and Peoria, Woodford, Tazewell, Mason, Menard, and Logan counties from the Central district)
- East-central (East and East Southeast districts [except Marion, Clay, Richland, and Lawrence counties], McLean, DeWitt, and Macon counties from the Central district)
- South (Southwest and Southeast districts, and Marion, Clay, Richland, and Lawrence counties from the East Southeast district)

We hope these reports will provide additional benefits for staying current as the season progresses.

Northern Illinois

Extension educators and volunteer cooperators will be monitoring numerous black cutworm moth traps scattered throughout the region this spring. Moth trap reports will be shared on a regular basis in future issues of the *Bulletin*.

West-Central Illinois

A little rain and snow earlier this week in some areas were a reminder that winter is not quite over. However, where possible, anhydrous ammonia application was picking up at a rapid pace. Some tillage and manure application also have been done.

Wheat fields have begun to green up, with most reports indicating good winter survival. Nitrogen still needs to be applied to some of those fields as soon as soil conditions will allow.

Alfalfa fields are showing signs of greening up also. Forty alfalfa stems per square foot are needed to justify keeping the stand. Plant height measurements will begin in several weeks to determine when the first harvest should be made, according to the PEAQ (Predictive Equation for Alfalfa Quality) method. Check the website http://peaq.outreach.uiuc.edu/ for more information about this program.

Farmers are completing such tasks as machinery repair and purchasing crop inputs, and are now waiting for soil and weather conditions to improve.

With relatively high crop prices, there seems to be a general feeling of optimism for the new crop year.

Contributing Authors

Kelly Cook (kcook8@uiuc.edu), Extension Entomology, (217)333-6651

Mike Gray (megray@uiuc.edu), Extension Entomology, (217)333-6652

Aaron Hager (hager@uiuc.edu), Extension Weed Science, (217)333-4424

Dawn Nordby (dnordby@uiuc.edu), Extension Weed Science, (217)333-4424

Kevin Steffey (ksteffey@uiuc.edu), Extension Entomology, (217)333-6652

U of I Extension Newsletter Service
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