



PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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Extension Entomologist

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More Details about the 2009 University of Illinois Corn & Soybean Classics

On behalf of my colleagues, I would like to announce the program details of the 2009 University of Illinois Corn & Soybean Classics. Our next series of meetings will mark the 12th iteration of the Classics, continuing the tradition of providing our clientele with the most current and timely information related to crop production and pest management. All those involved with program planning and delivery have worked hard and diligently to ensure that the 2009 Classics continue to meet our clients' needs. The program, with a format that emphasizes crop production, pest management, economics, and the interactions among them, will begin at 9:00 and conclude by 3:30. Market updates will be provided throughout the day, and communication between speakers and participants is encouraged. Question-and-answer sessions are scheduled for both morning and afternoon. Lunch and a proceedings booklet with synopses of all presentations are provided to each registrant.

There are six 2009 Corn & Soybean Classics:

- January 6 (Tuesday): Mt. Vernon, Holiday Inn
- January 7 (Wednesday): Champaign, I Hotel and Conference Center
- January 12 (Monday): Bloomington, Interstate Center
- January 13 (Tuesday): Springfield, Crowne Plaza
- January 14 (Wednesday): Moline, i wireless Center
- January 15 (Thursday): Malta, Kishwaukee College

The following list of speakers and topics applies to all the Classics, though individual schedules may require variations in the order of speakers:

- Carl Bradley, *Managing Corn and Soybean Diseases with Fungicides*
- Gary Schnitkey, *Rotation Decisions in a Turbulent Price and Cost Environment*
- Terry Niblack, *Things Are Changing Again in Corn and Soybean Nematode Management*
- Fabián Fernández, *Managing Expensive Nitrogen to Maximize Profitability*
- Emerson Nafziger, *Seed Costs and Corn Plant Populations*
- Darrel Good, *What Acreage Shifts Are Needed in 2009?*
- Mike Gray, *Maintaining Bt Durability with Cry Protein Stacks and Landscape/Seed Mixture Refuge: Is This Enough?*
- Aaron Hager, *Turn Out the Lights: The Party is Over*
- Kevin Steffey, "New Age" *Soybean Insect Management*

Registration for the Classics can be accomplished several ways:

- Online with a credit card at www.ipm.uiuc.edu/conferences
- By mail—send a completed registration form and payment to Department of Crop Sciences, Attention: Sandy Osterbur, University of Illinois, AW-101

Turner Hall, 1102 S. Goodwin Ave., Urbana, IL 61801 (make check payable to **University of Illinois**).

- By fax—fax a completed registration form to 217-333-5299 (available 24 hours a day) and mail a check to the address above.
- By phone—call toll-free, 800-321-1296, and pay with a credit card.

Preregistrations cost \$50 and are accepted through December 20. Registrations received after December 21 or on-site are \$65.

If you need additional information or have questions about the program, please feel free to contact me.—*Aaron Hager*

2009 Illinois Crop Management Conferences to Address Critical Issues

The latest perspectives on critical crop production issues will be discussed at four University of Illinois Regional Crop Management Conferences this winter. These two-day conferences will address a wide array of hot topics pertinent to crop production, pest management, natural resources, and economic issues, and they provide a forum for in-depth discussion and interaction among participants and university specialists.

Each conference will combine general sessions with concurrent breakout sessions on current research affecting crop production and marketing.

Certified Crop Advisers can earn up to 13 hours of CEU credit. Advance registration, which ends one week before each conference, is \$130 per person. Late and on-site registration are \$150. The fee includes lunch, refreshments, and handouts for both days. There is no one-day registration option.

These are the dates, locations, and contact persons for the four regional conferences:

- January 27–28: **West-Central.** Hamilton's – 110 Northeast, Jack-

sonville; Robert Bellm, Edwardsville Extension Center, 618-692-9434, rcbellm@illinois.edu.

- January 28–29: **Southern.** Rend Lake Conference Center, Whittington; Dennis Epplin, Mt. Vernon Extension Center, 618-242-9310, depplin@illinois.edu.
- February 3–4: **East-Central.** I Hotel and Conference Center, Campaign; Dennis Bowman, Champaign Extension Center, 217-333-4901, ndbowman@illinois.edu.
- February 4–5: **Northern.** Kishwaukee College Convention Center, Malta; Greg Clark, Whiteside Extension Unit, 815-772-4075, gmclark@illinois.edu.

—*Robert Bellm*

INSECTS

Survey for Second-Generation European Corn Borer Larvae, Illinois, 2008

As most of our readers know, entomologists at the University of Illinois have coordinated a survey for second-generation European corn borers annually (except in 1997 and 1998) since 1943. We decided in 1997 and 1998 not to conduct the survey (now much to our regret) because we were uncertain about how to deal with data from cornfields with hybrids that expressed the Bt trait for control of European corn borers and other caterpillars. Nonetheless, we resumed the survey in 2000 and have conducted it annually since. We question every year whether we should continue because our financial and human resources are stretched very thin, but as the data have arrived in our offices this year, we have been grateful to have continued. It has become quite apparent that the data we have been gathering has become historic, both literally and figuratively.

Because we have had such a “slow” fall season, for a number of reasons, we still do not have all of the survey

data. However, we have enough to tell a compelling story, so we decided to share it in this issue of *the Bulletin* (No. 24, November 7, 2008), rather than wait until December's issue 25. As you examine the data and read our interpretations, please be advised that as the data are finalized, some of the numbers will change. With footnotes in Table 1, we have indicated where we lacked data at the time of writing (November 5). Using the electronic “Alert” feature of *the Bulletin*, we will let you know when the data and analyses are finalized.

First, a refresher about how we conduct the annual survey. The survey is a cooperative effort among University of Illinois extension entomologists, extension educators, county directors, professional staff, graduate students, and undergraduate employees. There is no way such a large undertaking could be completed without the voluntary efforts of a lot of people. And for all of their efforts, made in addition to their “day job” responsibilities, we sincerely thank everyone involved for their unselfish cooperation.

At the time of writing, we had compiled data from 494 cornfields in 49 Illinois counties representing all nine Illinois Crop Reporting Districts. Except where noted in Table 1, 10 randomly selected fields were sampled in each county. In each field, 25 consecutive corn plants located a reasonable distance from the field edge were examined for signs of infestation by second-generation European corn borer larvae (e.g., borer entry holes, frass). When possible, two of the infested plants were split and examined for European corn borer larvae, which are recorded by instar and number. From these data, we estimate the percentage of plants infested and the average number of European corn borer larvae per 100 plants and per plant, depending on how we wish to display the data. The numbers of counties and total numbers of fields surveyed have changed over time, but the technique has remained essentially unchanged.

The data collection protocol within a given field has been essentially the same for 66 years, allowing us to compare European corn borer population dynamics over time.

Before we present the data and our interpretations, we restate for purposes of comparison a paragraph from “Is the European Corn Borer an Endangered Species?” (tongue in cheek, by the way) published in issue No. 24 of *the Bulletin* a year ago (November 9, 2007):

“The statewide average density of second-generation European corn borers in Illinois in 2007 was 13.4 larvae per 100 plants, the lowest density we have ever determined from these annual surveys, which began in 1943 (Figure 1). The next-lowest density (about 16 borers per 100 plants) determined from these surveys occurred in 2004. In the 63 years that the survey has been conducted (it was not conducted in 1997 and 1998), the average density of corn borers has been less than 0.35 larva per plant in 9 years . . . six times during the past 9 years, including the past 4 four years. These data suggest that Bt corn has become a major mortality factor in populations of European corn borers.”

Now for the 2008 data—and some of the information is a bit startling. The statewide average density of second-generation European corn borers in Illinois in 2008 was 9.61 larvae per 100 plants, or 0.96 larva per plant, the lowest density we have ever determined from these annual surveys, with the density from 2007 being the second lowest. For the state, only about 8% of the 494 corn plants examined were infested with second-generation European corn borer larvae. However, other numbers are very telling, too. Zero second-generation European corn borer larvae were found in 16 of the 48 counties surveyed, likely unprecedented in Illinois. Even more compelling, in our opinion, are data that are not included in Table 1:

- There were zero European corn borer larvae found in 418 of 494 fields, a shocking 85% of the fields surveyed.
- Only 28 fields (5.7% of the fields surveyed) had more than 50% infestation, with only 13 fields with more than 90% infestation (mostly in counties in the West Southwest, Southwest, and Southeast Crop Reporting Districts).

It is apparent from our data that the largest densities of second-genera-

tion European corn borers, such as they were, occurred in western and southern Illinois in 2008. Northwestern Illinois, historically a haven for European corn borers, had among the lowest densities.

The impact of transgenic Bt corn on European corn borer populations in Illinois has been dramatic. However, we suspect that in 2008 the weather also played a role in reducing European corn borer densities in Illinois. As you

Table 1. Results^a from the 2008 European corn borer (ECB) fall survey by county and Crop Reporting District (CRD), University of Illinois.

Counties ^b and CRDs	% of plants infested	ECB larvae per 100 plants	Counties ^b and CRDs	% of plants infested	ECB larvae per 100 plants
Bureau	0.0	0.0	East	0.5	0.3
JoDaviess	6.8	12.8	Christian ^e	4.57	0.43
Lee	5.2	5.2	Greene	7.6	1.0
Mercer	4.0	3.6	Madison	28.4	85.2
Ogle	0.0	0.0	Montgomery	28.4	33.4
Whiteside	3.6	3.6	Morgan	6.4	5.2
Winnebago	1.2	1.2	Pike	22.4	22.4
Northwest	2.97	3.78	Sangamon	5.6	3.6
DeKalb	0.0	0.0	West Southwest	14.77	21.6
Kendall	0.0	0.0	Clark	8.4	6.0
LaSalle	3.2	0.0	Coles	0.8	0.0
McHenry	No data ^c	No data ^c	Crawford	0.0	0.0
Will	0.0	0.0	Effingham	1.2	0.0
Northeast	0.8 ^d	0.0 ^d	Lawrence	10.4	7.0
Adams	34.8	32.2	Marion	2.8	1.2
Fulton	9.2	12.2	Shelby	3.6	0.8
Knox	0.0	0.0	East Southeast	3.89	2.14
McDonough	16.4	5.6	Alexander-Pulaski ^f	15.2	12.0
Schuyler	11.2	14.4	Jackson	4.8	4.8
Warren	5.2	0.0	Monroe	29.2	15.0
West	12.8	10.73	Washington	8.0	8.0
Logan	2.8	0.4	Southwest	14.3	9.95
Macon	No data ^c	No data ^c	Franklin	13.6	15.2
Mason	No data ^c	No data ^c	Massac	8.0	0.0
McLean	0.0	0.0	Saline	26.4	60.8
Peoria	2.8	1.2	Wayne	1.6	0.8
Woodford	10.8	9.8	White	28.0	75.0
Central	4.1 ^d	2.85 ^d	Southeast	15.52	30.36
Champaign	0.0	0.0	STATE	8.01	9.61
Iroquois	1.2	0.0			
Livingston	0.8	1.2			
Vermillion	0.0	0.0			

^aAs of November 5, we had received results from 49 of the 52 counties sampled. This table will be updated after all data have been obtained.

^bUnless otherwise indicated, 10 randomly selected fields were sampled in each county.

^cData not available for this county at the time of writing (November 4).

^dAverage based on incomplete set of data for the designated CRD.

^eFourteen randomly selected fields were sampled.

^fFive randomly selected fields were sampled in each of the two counties.

may recall, we reported in previous issues of *the Bulletin* this year that reports of infestations of first-generation European corn borers were more frequent than they had been in 2007. Shortly thereafter, heavy rainfall events in some areas of Illinois likely caused mortality among the European corn borer moths, contributing to the overall mortality of European corn borer populations caused by Bt toxins.

A reminder: the data in Table 1 are not complete, so some changes are expected. However, we know from conversations with our surveyors that the data will change very little and that the extraordinarily low density of European corn borer larvae in Illinois in 2008 will remain a record. Stay tuned to the “Alert” that will indicate that the data have been finalized.—
Kevin Steffey and Mike Gray

CROP DEVELOPMENT

Observations from the Unusual 2008 Season

Soybean harvest is nearing an end for 2008 in Illinois, and corn harvest is finally making rapid progress, with some two-thirds or more of the crop harvested by now. To call this an unusual year seems like quite an understatement. The 2008 season in a nutshell:

- The spring was cool and wet, and planting was delayed for both corn and soybean; corn reached 50% planted by about May 8, and soybean not until the end of May. Much of the crop was planted into less-than-ideal conditions.
- Emergence and early growth of both crops was slow through late May, with emergence percentage lagging about two weeks behind normal.
- In some parts of Illinois, many fields of both crops had to be replanted, in some cases more than once. Many fields of corn and soybean in south-central Illinois were planted (for the last time) in June, some in late June.
- Rainfall was in plentiful supply in most areas in June and July, with monthly totals more than twice the average in some places.
- There was little if any hot weather during the entire growing season, and growing degree day accumulation was below normal early in the season and fell further behind during the season, with deficits of 100 to 200 GDD from May 1 through the end of August.
- Heavy rainfall fell in most areas during the first half of September, generated by hurricane remnants. GDD accumulations caught up slightly in September, but harvest started very slowly, with less than 10% of corn and soybean harvested by the end of September.
- There was some light frost in northern Illinois the first week of October, but the first killing frost occurred only during the last week of October in most of the state.
- Harvest of both corn and soybean dragged out through October, with delays due to late maturity in both crops, wet soils for soybean, and high corn grain moisture.

After a season of on-and-off, unevenly distributed poor conditions, yields of both corn and soybean will be among the highest on record, with soybean yield predicted at 45 and corn at 177 bushels per acre in the October estimate. There have been reports of very high yields of both crops in some areas, especially in parts of western, northwestern, and central Illinois. Soybeans and corn replanted in mid-to late June in south-central Illinois yielded in some cases 60 and 180 bushels per acre or more. The only reasonable explanation for such yields is that the season was much extended, with maturity occurring weeks to a month or more later than average, and a great deal of grain filling after

September 1, during the weeks before maturity.

I had predicted back in the “troubled” days of May and June that a good September could bale us out of trouble, but the hope was that yields would not be less than normal for such late planting, and few were thinking about the possibility of above-average yields. Without doubt, the recovery from a late and poor start to the season was beyond anyone’s hope.

The predictions I made in June about how crops would respond to late planting were completely inaccurate as a result of the unusual season. Averaged across plant populations, the last planting, on May 30, yielded more at Perry than did any of the earlier plantings, which ranged in date from April 7 to May 10. Such results represent a dilemma: if such a season will never happen again, then including it in the database means less accuracy in future predictions of planting date effects.

While yields in many fields are good to outstanding in many areas, problems in ear development, similar to those I discussed earlier in the season, became noticeable in some fields only during harvest, often only after yields were lower than expected. Some of these symptoms may be related to later-than-normal herbicide application and may in some cases be related to the use of certain additives, if not to the herbicides themselves. One symptom that has been reported from a number of fields is the presence of “empty” kernels, present only as the seedcoat, scattered on the ear among normal-sized kernels. We will study these cases and try to see if they have a cause in common. But it is possible that such unusual symptoms came about because of unusual interactions between practices and crop development as affected by unusual weather. If that’s the case, we may never see such symptoms again.—*Emerson Nafziger*

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

Soybean harvest is complete for all practical purposes in the northern

region. Yields were variable and ranged from mid-40s to 70 bushels per acre, with a common yield in the low 50s. Lyle Paul at the Northern Illinois Agronomy Research Center reports that the U of I soybean variety trial yields ranged from the low 40s to 60s. Individual variety yields from the Variety Testing Program locations are available at vt.cropsci.uiuc.edu.

Completion of corn harvest is varies widely—over 70% has been harvested in the southern fourth of the region, about 50% to 60% in Whiteside and Lee counties, approximately 30% in parts of Ogle County, and less in some areas of the far northwest. Early reports of yields have been very good, ranging from 200 to 230 bushels per acre. However, many acres of later-planted corn have yet to be harvested.

Southern Illinois

Because the first killing frost occurred later than normal, even most soybean planted very late reached maturity successfully. Excellent weather has permitted harvest to progress rapidly throughout the region, and yields are coming in higher than many expected based on the late planting date.

Corn harvest is also progressing, but at a slower pace. Corn planted in mid-June has been slow to field-dry. Growers without adequate drying systems have to decide between waiting for field drying below 20% or to deliver directly to the elevator and take a substantial moisture dockage.

Late harvest has impacted wheat planting, with most of the crop planted well

past the fly-free date. Estimating wheat acreage is always difficult, but it seems to be down substantially from last year.

West-Central Illinois

Harvest completion ranges from finished to perhaps 50% completed. Those areas to the north and east more complete than areas to the south west. Corn yields, even with late planting (June) have been excellent. Although moisture levels have not dropped as fast as was expected.

Soybean harvest mirrors that of corn, with some completed while others have another 4-5 days of good weather to finish up. A lot of acres have been harvested over the past 7 days. Like corn yields, soybean yields have been good to excellent.

Tillage work, where the crop has been harvested, is progressing, although slowly. Some dry fertilizer and anhydrous have been applied.

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