



# PEST MANAGEMENT & CROP DEVELOPMENT

## BULLETIN

No. 17 / July 17, 2009

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Available on the Web at  
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EXTENSION

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### New Illinois Agronomy Handbook Available

After an extended period of preparation, the 24th edition of the *Illinois Agronomy Handbook* came off the press this week. Here are some questions and answers about the new version:

**Q: What's new in this edition?**

A: Just about everything. Many sections and even whole chapters from the previous version were essentially scrapped and replaced by new material. Up to 2000, we revised the handbook every two years, but these revisions were often slight, and parts had not changed, or had changed little, over many years. This is the 11th revision I have been involved in during my career (starting in 1982), and this one was far more thorough than what was done over all 10 revisions that preceded it.

**Q: Isn't the previous edition (the 23rd) still okay for most things?**

A: No. As an example, there is a whole new chapter on nitrogen that completely replaces the corn-yield-based N recommendation with a system that generates guideline N rates using recent data, and that takes into account changes in N and corn prices. The chapter on insect management is entirely new, and chapters on corn, soybeans, small grains, weed management, and most others are completely revised. The previous edition has never been more out of date than it will be this time.

**Q: What differences from the previous edition will I notice first?**

A: The first thing you'll notice is the "new and improved" look of the handbook, with redesigned pages and graphics and full-color printing. This is the first edition of the handbook ever with color photos and graphics. This edition is also 100 pages shorter than its predecessor, mostly as the result of dropping a large number of tables (for example, those listing herbicides for different crops and against different weeds, which are quickly out of date and are available elsewhere) and by focusing instead on principles of crop, soil, and pest management. There is also an index at the back of the book to help you get to the information you want more quickly.

**Q: Will the new edition be available on the Web?**

A: This is the most common question I've been getting, and unfortunately the answer is no. Making this freely available online would give us no way to recover the costs of producing and printing the publication. The previous edition was on the Web as a PDF file, but that was done with special funding, which we no longer have. That funding, however, also allowed us to develop the online calculators (seed drop, yield estimation, corn replant, etc.) that will continue to operate.

**Q: Who should purchase this new edition of the handbook?**

A: I'll admit to some bias, but I believe that this is a publication that everyone who works with field crops in Illinois should have.

**Q: I already ordered this back in the winter. When will I get it?**

A: All back orders have been filled and the books were shipped by July 14, so if your copy isn't already in your hands, it will be soon.

**Q: I'm interested. How much does it cost, and how do I order it?**

A: The new handbook costs \$35. You can order it online with a credit card day or night from Pubs Plus at [pubsplus.illinois.edu](http://pubsplus.illinois.edu), or you can call Infor-

mation Technology and Communication Services at 1-800-345-6087 (or 333-2007 if you are local to Urbana-Champaign).—*Emerson Nafziger*

## INSECTS

### Insect Observations from the North-Central Region

On July 13, extension entomologists exchanged observations by teleconference about insect pests of field crops in their respective states. Provided here are summaries for the key insects we discussed.

**Soybean aphids.** In general, soybean aphid densities are low in many north-central states, including Illinois. In Ohio, overall densities remain low, but some fields are showing signs of infestations further to the south than in recent years. Low numbers of soybean aphids also were reported in Indiana, Nebraska, and South Dakota. In Iowa, expectations are that in some fields, the economic threshold may be reached in the next 7 to 10 days. Producers are encouraged to familiarize themselves with scouting procedures and to be ready to make a management decision if average densities reach 250 aphids per plant in soybean fields.

Further to the north, the economic threshold has been reached in certain fields in eastern Ontario. In Illinois, overall reports of aphids remain very few and widely scattered. Ryan Stofregen, Advanced Crop Care, reported that two soybean fields in McHenry County near Marengo have had very low levels of aphids (1 to 10 aphids per plant) for the past 3 weeks. One field had 30% to 40% of plants infested; the infestation in the other field ranged from 10% to 30%. Ryan also reported that soybean aphids have been found in the last week in DeKalb and Boone counties; fewer than 10% of plants were infested, with typical densities of two aphids or fewer per leaf. So, as previously reported, soybean aphids are off to a slow start this season across a large area of the Corn Belt. But we have a long way to

go this summer with this insect pest, and soybean fields should be scouted regularly to optimize any management decisions that may be required.

**Corn rootworms.** Very few reports were offered about to corn rootworms, but western corn rootworm adult emergence is well under way in Illinois. Entomologists at Purdue University have observed very low levels of root injury in their experimental plots. We intend to begin our root evaluations early next week and look forward to sharing the results of our annual root digs in upcoming issues of *the Bulletin*. The low levels of root injury reported by Purdue entomologists may be the result of the very wet soil conditions at the time of larval hatch this spring.

**Western bean cutworms.** Entomologists in Ohio reported that larger numbers of western bean cutworms have been observed this season than in previous years. Entomologists at Purdue reported increases in captures during the past week, and in some corn fields (northwestern Indiana) egg masses and emerging larvae can be found. Illinois producers are encouraged to begin scouting corn fields for western bean cutworms. If 8% of plants have an egg mass or young larvae, consider a rescue treatment.

For more complete life cycle and management recommendations on western bean cutworm, visit [ipm.illinois.edu/fieldcrops/insects/western\\_bean\\_cutworm](http://ipm.illinois.edu/fieldcrops/insects/western_bean_cutworm). If you are experiencing significant infestations in your area of Illinois, please let me know and I will share your observations with readers.

**Japanese beetles.** Reports of Japanese beetle infestations continue, particularly in the eastern Corn Belt. For the next several weeks, producers are encouraged to monitor their corn fields for silk clipping and soybeans for defoliation. Because these beetles tend to concentrate in border rows of both crops, rescue treatments applied to field margins may be sufficient in some cases.—*Mike Gray*

## PLANT DISEASES

### Effects of Foliar Fungicides on Corn Stalk Quality

*Note: Be sure to read "Considerations for Applying Foliar Fungicides to Corn" in the July 10 issue of the Bulletin for important information about risk factors and disease observations that can be used to make fungicide application decisions.*

In the last week, I've received a few questions about the effect of foliar fungicides on stalk quality of corn. In 2008, stalk quality was evaluated in some of my corn fungicide research trials. When the black layer was evident in corn, stalks in each plot of these trials were split open with a knife and evaluated for stalk rot severity using a 0 to 5 scale (0 = no stalk rot evident and 5 = complete destruction of the pith with lodging below the ear; the scale was developed by Ron Hines, formerly with the University of Illinois).

**Belleville and Dixon Springs trial.** One of the research trials in which stalk rot was evaluated was planted at both Dixon Springs and Belleville. The Dixon Springs site was planted in early May; the Belleville site was not planted until June because of heavy rainfall throughout May. At Dixon Springs, foliar disease pressure was low, and no statistical differences in foliar disease severity were observed between the untreated control plots and the fungicide-treated plots (Headline at 9 fluid ounces per acre, in this case). At Belleville, common rust severity was extremely high and caused considerable foliar disease severity in the untreated control (72% severity on the ear leaf). Headline fungicide was able to provide adequate protection, and treated plots had low foliar disease severity (less than 10% severity on the ear leaves of treated plants). Stalk rot severity followed a similar trend; it was relatively low at Dixon Springs, with fungicide having no effect. In contrast, at Belleville, stalk rot was

statistically less severe in Headline-treated plants than in untreated plants.

**Urbana trial.** A fungicide research trial conducted at Urbana included one hybrid considered to be susceptible to gray leaf spot (GLS) and another considered to be moderately resistant to it. In addition, this trial was mist-irrigated throughout the season to help ensure a favorable environment for GLS. Foliar disease severity was greatest on the susceptible hybrid, and the foliar fungicide (Headline at 6 fluid ounces per acre) reduced disease severity compared to the untreated control on this hybrid. On the moderately resistant hybrid, no statistical difference in foliar disease severity occurred between untreated and Headline-treated plots. Similar to the foliar disease ratings, stalk rot severity was greatest on the GLS-susceptible hybrid, and Headline fungicide reduced stalk rot compared to the untreated control in this hybrid. On the hybrid that was moderately resistant to GLS, no differences between untreated and Headline-treated plants occurred for stalk rot severity.

**Relationship between foliar disease and stalk rot.** Based on the results I've presented, I think it is fair to state that there is a relationship between the severity of foliar disease and of stalk rot. This relationship has been observed by others and has been studied in the scientific literature. When foliar disease pressure is severe, the "blighted" leaves cannot produce enough photosynthates (sugars) to adequately fill the ear. The plant may "rob" the stalk for additional sugars, which can damage the integrity of the stalk and allow additional colonization by stalk-rotting pathogens. So foliar fungicides can impact stalk rot, but they likely do not directly control stalk rot pathogens; rather, they control foliar pathogens, which allows the plant to get more photosynthates from leaf photosynthesis because of reduced foliar disease severity. Knowing this, it's likely that we will only see improved stalk quality with fungicides when foliar disease pressure is high.

Funding for some of these research trials was provided by the Illinois Department of Agriculture Fertilizer Research and Education Council (FREC) and the USDA-CSREES North Central Regional Integrated Pest Management Program.—*Carl A. Bradley*

## CROP DEVELOPMENT

### Soybean Growth and Development: Mid-July Update

As I write this, it is another rainy July morning in Urbana. On June 1 the Illinois State Climatologist Office ([www.isws.illinois.edu/atmos/statecli](http://www.isws.illinois.edu/atmos/statecli)) reported that 2009 was the fifth wettest spring on record, with 15.9 inches. That was good for 4.5 inches above normal; some areas of the state around Peoria had their wettest spring on record, with 27.7 inches. June added 5.25 inches average, for another 1.2 inches above the statewide normal precipitation. Now it's mid-July, and, well, through the 14th the statewide average is nearly 3/4 inch above normal, with only the northeast and west districts receiving slightly below average rainfall. June temperatures, interestingly, averaged 72.6 °F, which is only 0.7 degrees above normal; however, the first half of June was 2.6 below and the last half 4.1 above normal. The first half of July has been cool again, averaging 75.7 °F, which is 5.4 below normal.

What does all this mean? For one, it has been a tough year to get field work accomplished—that's a given. Two, soybean acres established in decent field conditions have been given excellent conditions for vegetative development. Adequate moisture and the relatively cool temperatures in late June and early July may have early June-planted soybeans behaving as if they were planted in mid-May.

The July 13 USDA NASS Weather and Crops report indicated soybean conditions as 31% fair, 49% good, and 11% excellent. And while soybean planting progress was slightly behind that of 2008, only 11% of the soy-

beans have begun reproductive development (flowering). This is half the amount of acres in bloom at this date in 2008 and 1/5 of the 5-year average. If rainfall remains adequate in amount and periodicity throughout the later reproductive stages and as temperatures increase, the extra time devoted to vegetative development before beginning reproduction could prove to be a good sign for the availability of nodes for potential flower and pod set.

In Urbana my soybeans planted in late May are in the first reproductive stage (R1), which signifies that 50% of the plants are flowering, and some experiments are approaching R2. The soybeans planted in mid-May are at the R2 growth stage, or "full bloom," signified by flowers on one of the upper two nodes of the main stem with a fully developed leaf.

For some more good news, I have heard of few isolated instances of soybean lodging or defoliation due to storm damage. I have also not heard of any major insect or disease outbreaks, but I know Drs. Mike Gray and Carl Bradley will continue to monitor and keep all of us updated for official scouting concerns. In general, the value of scouting can never be stressed enough, and applications of insecticides and fungicides in the reproductive stages should be made to protect from yield losses due to pests. They do not generally increase yield in the absence of pests, so scouting should always come before planning an application. Let's hope for the favorable weather and conditions to continue.—*Vince M. Davis*

## REGIONAL REPORTS

### Northern Illinois

Several showers last week amounted to an inch or more for a large area of the region. Some of the earliest planted corn has begun to tassel this week. As mentioned last week, shorter corn plants in low-lying field areas are growing slowly due to compaction. Potassium deficiency is being observed in some corn fields. Soybeans

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are growing well, though some fields still need postemergence herbicide. There have been no reports of soybean aphids from extension educators monitoring soybean rust sentinel plots. Some soybean fields have begun to blossom. Japanese beetles can be observed in soybeans, but populations are sparse and well below threshold.

Limited wheat acreage has been harvested in the northern region. Alfalfa regrowth is being treated for potato leafhopper infestations.

#### **West-Central Illinois**

Early corn has pollinated or is shooting tassels now and looks good. Gray leaf spot is appearing in some fields and has been found on leaves above the ear. Those parts of fields that were planted when soils were too wet have been able to respond and look much better than just a few weeks ago. The western side of the region has been missing the rains since July 4, and some corn could use another drink; root systems are very compromised in some cases. The eastern side of the region has continued to get frequent rain.

Early beans have been blooming for 10 days or so. They have really taken off the past two weeks. Later-planted beans have a long way to go.

Japanese beetles are starting to become a problem in some areas, and a few fields will likely get sprayed this week.

Wheat harvest is all but complete, and for most the yields were kind of disappointing.

Second cutting of alfalfa harvest has been a real challenge, and finding second-cutting hay without rain will be difficult.

Emergence of male corn rootworm beetles has occurred.

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Published by University of Illinois Extension and  
Information Technology and Communication Services,  
College of Agricultural, Consumer  
and Environmental Sciences,  
University of Illinois.

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