



PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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Last Issue in 2008

The 2008 growing season was notable in a number of ways, with plenty of issues that had major impacts on crop production and protection. In agriculture, we always expect to learn something new from the events and activities of the preceding year, and the occurrences in 2008 will not be an exception. We hope to be able to discuss the details of the year with many of you at educational events over the next few months and to share some of our findings from multiple field research efforts. We look forward to the interactions.

I speak for all of the Extension specialists and educators who contribute to *the Bulletin* when I thank all of our readers, both dedicated and casual, for your continued interest in our newsletter. We also appreciate the many reports from the field we receive throughout every growing season, reports that keep us plugged in on a local level. Through *the Bulletin* and other educational vehicles, we strive to continually provide as much research-based and situational information as possible. In return, we ask only for occasional feedback to let us know what you think about the information we provide. We want to make certain that our educational products are providing you with the type of details that enable you to make informed crop and pest management decisions.

We hope you continue to obtain some benefit from our articles and plan to refer to *the Bulletin* for objective information again in 2009. Between now and then, we likely will see many of you at one or more educational events over the next few months, and we look forward to the interactions and suggestions for improving our efforts. In the meantime, enjoy the opportunity to relax with friends and family during the holidays. —*Kevin Steffey*

Reminder: 2009 University of Illinois Corn and Soybean Classics

With many field-related tasks now complete, we take an opportunity to remind readers about the 2009 University of Illinois Corn and Soybean Classics. The Classics will be held next month at six venues across Illinois:

- 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

Registration for the 2008 Corn & Soybean Classics can be accomplished several ways:

- Online at www.ipm.uiuc.edu/conferences.
- Mail your registration form and payment to Department of Crop Sciences, Attention— Sandy Osterbur, University of Illinois, AW-101 Turner Hall,

1102 South Goodwin Avenue, Urbana, IL 61801. (Make checks payable to **University of Illinois**.)

- Complete the registration form and fax to 217-333-5299 (available 24 hours a day).
- Call 800-321-1296 (toll-free) with credit card information.

Preregistrations, at a cost of \$50, are accepted through **December 20**. Registrations received December 21 through 31 and all on-site registrations are \$65.

On behalf of all those associated with the Corn and Soybean Classics, we look forward to visiting with you there. If you need additional information or have questions about the program, please feel free to contact me. —*Aaron Hager*

A New “Illinois Crop Protection Technology Conference” in 2009

In issue 23 of *the Bulletin* (October 3, 2008), I wrote regarding the retirement of the Illinois Crop Protection Technology Conference after a 60-year run. This is a follow-up to clarify that we will not hold the conference in January 2009, although there will be other University of Illinois-sponsored educational events (the Corn & Soybean Classics and the Crop Management Conferences) in January and February. However, we ask that you mark the dates **December 1 and 2, 2009**, for a new educational program to be held at the i Hotel and Conference Center in the Research Park at the University of Illinois at Urbana-Champaign. Although the name and format of the conference will change, we are still in the planning stages, so details are not yet available. We invite you to check our conference Web site (www.ipm.uiuc.edu/conferences) for developments over the next few months. In addition, we will advertise the new conference in future articles of *the Bulletin* and through other media. Stay tuned. In the meantime, let us know if you have any questions or suggestions. —*Kevin Steffey*

CROP DEVELOPMENT

Sulfur for Corn

Volunteers are needed throughout Illinois to participate in on-farm research measuring corn response to sulfur applications. While sulfur deficiency is not widespread, its frequency in corn has increased since it was first seen in Illinois three decades ago. This increase is likely the result of several factors, including less use of sulfur-containing fertilizers, insecticides, and fungicides; less atmospheric sulfur deposition; higher removal rates by increasing grain yields; increased use of conservation tillage, which may reduce sulfur availability; and fewer livestock operations, causing less application of manure.

Required soil conditions. In an effort to characterize sulfur response across the state, the study will be conducted in as many locations as possible under high-yielding environments. While soils with fine texture and high organic matter will be included, priority will be given to sites with low organic matter (less than 2%), coarse (sandy) texture, or both. These criteria were selected because they influence the natural sulfur-supplying power of the soil and the ability to retain sulfur in the rooting zone. Sites with suspect sulfur deficiency are particularly desirable. Fields that have received manure or sulfur applications in the last 5 years will not be considered.

Required equipment and sulfur sources. Volunteers will broadcast sulfur in strips using GPS to georeference the strip locations. Grain yields will be calculated using a yield monitor or weigh wagon.

Sulfur sources will be limited to ammonium sulfate $(\text{NH}_4)_2\text{SO}_4$ (21-0-0-24); MicroEssentials sulfur (ME S), ME S15 (13-33-0-15) or ME S10 (12-40-0-10); and elemental sulfur (0-0-0-90). One or two sulfur rates will be applied in strips; each will be replicated at least three times. If the sulfur source contains other accompanying

nutrients, the corresponding rates will need to be applied to other treatment strips to avoid a differential response to nutrients other than sulfur.

Volunteers will not be required to take plant or soil samples, but they need to allow the researcher to visit the strips approximately three times during the growing season. —*Fabián Fernández*

Fall and Winter Applications of Urea for Corn

This fall a combination of factors, including late harvest and high fertilizer prices, resulted in reduced fall applications of anhydrous ammonia for the 2009 corn crop. Recently, in at least some locations, prices for urea ($\text{CO}[\text{NH}_2]$) have been lower than for anhydrous ammonia, and some producers have wondered if it is advantageous to apply urea this fall. The answer is no.

Urea is 46% N, all in the urea form. As such, it is very soluble and moves freely up and down with soil water. After application in the soil, NH_2 changes to ammonia (NH_3) either chemically or by the enzyme urease, and then to ammonium (NH_4^+). Because urea transforms quickly to NH_3 and then to NH_4^+ , some people might be tempted to assume it is similar to anhydrous ammonia, since both products undergo the same transformation in the soil. While it is true that both sources transform to NH_4^+ , urea can be quickly nitrified—transformed to nitrate (NO_3^-)—even if applied late in the fall. Once N is in the NO_3^- form, it is susceptible to denitrification or leaching the following spring. When anhydrous ammonia is applied in the soil, there is a large change in soil pH surrounding the fertilizer band. This change in pH inhibits nitrification by microorganisms and causes anhydrous ammonia to have a lower susceptibility to nitrification and potential loss compared to urea.

When the conversion of urea to NH_4^+ occurs on the soil surface or on the surface of crop residue or leaves, some

of the resulting ammonia will be lost as a gas to the atmosphere. The risk of N loss through volatilization from winter application of urea for corn on frozen soils is too high to consider the practice unless urea is incorporated with a half inch of precipitation within 4 to 5 days after application. As much as 40 bu/acre yield loss has been observed when urea is surface-applied in frozen soils during the winter.

For the reasons described, urea application in fall or winter has not been as effective as fall-applied anhydrous ammonia for corn. While it is possible to see little difference between fall application of anhydrous ammonia and urea in some years, this seldom occurs. Over many years research and observations have shown that the risk of N loss from urea application in the fall or winter is simply too large to consider the practice, even if the price of urea is lower than that of anhydrous ammonia.—*Fabián Fernández*

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

Corn harvest has been slow to wrap up, but progress has been made the last few weeks, with only scattered fields remaining. High corn moisture has slowed harvest the entire fall as elevators have been closing in early afternoon to catch up with drying. Corn moisture has still been averaging about 20% or more the last few weeks. Yields generally have been better than expected considering the cool spring and some less-than-timely planting. There were consistent 210-plus yields in the southern third of the region. Soybean yields were higher than average, with many producers reporting yields in the mid- to high 50s.

Fall tillage and anhydrous ammonia application have been taking place the

last few weeks; to date there has been considerably less fall-applied nitrogen compared to past years. Most of the northern region had 2 to 5 inches of snow on November 30–December 1, which will further slow fall field activity.

West-Central Illinois

There is just an isolated field or two of corn to harvest yet. Some of these are still very wet (25% moisture or more). The crop is standing remarkably well.

Yields were exceptional, especially in light of planting dates much later than normal.

Fall tillage has been completed for the most part. Fertilizer application has not followed suit. Producers who purchased NH_3 and dry fertilizer this summer (at prices lower than the current ones) are about the only ones applying product. Those who didn't buy early are taking a wait-and-see attitude.

Based on seed purchases thus far, it doesn't appear that the crop mix of corn and soybean will change much on many farms. However, wheat acres are going to be many fewer than anticipated, due to late harvest and wet soils.

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