



PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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UNIVERSITY OF ILLINOIS
EXTENSION

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INSECTS

Corn Rootworm Larval Hatch Reported

Three entomologists at Purdue University have confirmed that the hatch of corn rootworm larvae is underway in west-central Indiana. Christian Krupke, John Obermeyer, and Larry Bledsoe estimated that the hatch began on June 1 for this region of Indiana. Degree-day accumulations (base 52° F) from January 1 to June 7 for Champaign, DeKalb, Monmouth, and Springfield were 444, 289, 438, and 884, respectively. Approximately 684 to 767 degree-days are required for 50% of corn rootworm larvae to complete their annual hatch. Over the next 2 to 3 weeks, corn rootworms will continue to hatch, subjecting corn root systems to larval injury. Damage to late-planted corn may be more severe due to the overall smaller root system exposed to corn rootworm feeding. If you observe significant corn rootworm injury, please let me know. —*Mike Gray*

Black Cutworm Damage Observed in Northern Illinois

As advised in earlier articles in *the Bulletin*, producers should remain vigilant and continue scouting corn fields for any signs of black cutworm injury. Jim Donnelly, a field advisor for Monsanto Company, indicated on June 8 that sporadic infestations of black cutworms have been observed in Bureau County. In one particular field (first-year corn following soybeans, conventional tillage), Jim observed that about 5% of the corn plants had significant injury and were not likely to recover. Many of the plants, while not cleanly cut off at the soil surface, had considerable stem tissue removed from within the base of the plant, resulting in wilting and dying plants. Jim also found one newly emerged corn field (corn following wheat) with 2% of the plants cut. Bottom line: many corn fields remain at risk for black cutworm damage. Don't neglect to scout for this insect while focusing on soybean planting. This could be a costly mistake. Thanks to Jim Donnelly for sharing his observations. —*Mike Gray*

European Corn Borer Moths and Larvae Active

On June 5, I observed European corn borer moths in grassy ditch banks (action sites) surrounding fields in Champaign and Piatt counties. The moths were not very numerous, and most of the corn plants in nearby fields were still very small seedlings—from a European corn borer's perspective, a target site less than ideal for laying eggs. Last fall, our annual corn borer survey revealed historically low levels of this once-prominent insect pest. The delays in planting this spring will contribute to poor survivorship of the first generation. Add to this scenario the escalating use of highly effective Bt hybrids and we should anticipate first-generation corn borer infestations being relatively scarce this year across much of the state.

Further to the south, Dr. Doug Johnson, an extension entomologist at the University of Kentucky Research and Educator Center in Princeton, Kentucky, reported that economic levels of European corn borer had been

confirmed in one non-Bt cornfield. However, he also reported that overall numbers of European corn borers caught in traps were very low. Mike Roegge, extension crop systems educator, Adams/Brown Extension unit, reported moths as well as first-instar European corn borers in a field of sweet corn.

Historically, late planting of corn has favored the establishment of second-generation European corn borer infestations. Although I anticipate very low densities of European corn borers this season, refuges of non-Bt corn could be vulnerable to significant infestations late in the growing season—from an insect resistance management perspective, not a bad thing. Recall that the aim of refuge implementation is to prolong the usefulness of Bt hybrids by preventing or delaying resistance development. To accomplish this goal, European corn borer survivors are needed in refuges to increase the chance that any rare resistant European corn borer that survives after feeding on a Bt corn plant will mate with a susceptible moth. I encourage growers to scout both Bt and refuge areas of fields and to report any unusual or unanticipated signs of insect injury to Bt plants.—*Mike Gray*

Soybean Aphids Found in Michigan Soybean Fields

On June 2, Chris DiFonzo, extension entomologist at Michigan State University, found soybean aphids in an early-planted soybean research plot located near her campus. She estimated that approximately 5% of the plants were infested with aphids. Chris observed mature nonwinged mothers and nymphs, and she estimated that the flight into the field probably occurred 7 to 10 days earlier. Winged aphids also were present on plants, suggesting that a more recent flight had taken place.

At present it remains a bit uncertain how significant soybean aphid infestations might become across Illinois and the north-central region of the United

States. Since the pest's discovery in North America in 2000, soybean aphid outbreaks have been most intense in odd-numbered years. For instance, in 2003, producers in Illinois encountered widespread economic infestations of this insect pest. More localized outbreaks took place in 2005, and in 2007 the northern third of the state had significant management challenges with soybean aphids.

This seemingly predictable every-other-year cycle ended in 2008 for Illinois and many other north-central states. Why? Some entomologists have speculated that low populations of natural enemies in soybean fields may have triggered increased densities of soybean aphids during 2008. Just how important are these populations? A paper by some Canadian scientists helps shed some light on this question. Experiments conducted in their laboratory (Department of Environmental Biology, University of Guelph, Guelph, Ontario) revealed the significance of two important predators: the seven-spotted lady beetle and the multicolored Asian lady beetle.

Based on their investigations, the researchers calculated a “theoretical maximum daily predation rate” of adult soybean aphids by seven-spotted lady beetles to be 204, 277, and 166 aphids consumed by third instars, adult females, and adult males, respectively. Among multicolored Asian lady beetles, the third instars, adult females, and adult males consumed (daily predation rates) 244, 156, and 73 adult soybean aphids, respectively.

The findings attest to the importance of both of these predators in suppressing densities of soybean aphids. For additional details about this research, please consult the authors' scientific paper, published by the Entomological Society of America: Y. Xue, C.A. Bahlai, A. Frewin, M.K. Sears, A.W. Schaafsma, and R.H. Hallett. 2009. Predation of *Coccinella septempunctata* and *Harmonia axyridis* (Coleoptera: Coccinellidae) on *Aphis glycines* (Homoptera: Aphididae). *Environmental Entomology* 38(3): 708–714.

Conserving populations of beneficial arthropods (insects and spiders) should be a cornerstone in the sound management of many insect pests of field crops. Eliminating prophylactic insecticide treatments within crops as well as enhancing (reducing or eliminating insecticides and short mowing practices) populations of natural enemies in noncrop areas would go a long way in conserving beneficial insect populations. In early June, it was easy using a sweep net to find many beneficial insects inhabiting grassy areas surrounding corn and soybean fields in central Illinois. These noncrop areas serve as reservoirs for many species of predators and parasitoids. As field crops mature during the growing season, many species of natural enemies will begin to move into these fields in search of prey. Let's hope the natural enemy populations help keep soybean aphid densities in check this growing season.—*Mike Gray*

EPA Revokes All Tolerances for Carbofuran

The United States Environmental Protection Agency (EPA) recently revoked all tolerances for carbofuran. This insecticide, most commonly used across the Corn Belt as Furadan 4F, has recently gained interest among some producers as a refuge treatment for corn rootworm control. On occasion this formulation also has been used as a rescue treatment for corn rootworms. According to the *Federal Register* (May 15, 2009, Vol. 74, No. 93), the EPA has concluded “that the risk from aggregate exposure from the use of carbofuran does not meet the safety standard of section 408(b) (2) of the Federal Food, Drug, and Cosmetic Act (FFDCA).” This final ruling becomes effective on August 13, 2009. Any written objections or requests for a hearing must be received on or before July 14. For additional information about the ruling, please review the *Federal Register* article at www.epa.gov/fedrgstr/EPA-PEST/2009/May/Day-15/p11396.htm.—*Mike Gray*

WEEDS

Maximum Corn Growth Stages for Postemergence Herbicides

The labels of most postemergence corn herbicides include application restrictions based on a maximum corn size (specified as corn height, leaf or collar number, or sometimes both). For product labels that indicate a specific corn height and growth stage, be sure to follow the more restrictive of the two. If these restrictions are not followed, there can be substantial crop injury that may lead to yield reductions. Adverse environmental conditions (such as prolonged periods of cool air temperatures) sometimes result in corn plants that are physiologically older than their height would suggest, so be sure to accurately assess plant developmental stage (i.e., leaf/collar number) in addition to plant height.

Table 1 details labeled corn growth stages for several postemergence herbicides. Keep in mind that maximum height restrictions may change when two or more products are applied in combination, so be sure to follow guidelines for the more restrictive corn stage to reduce the potential for adverse crop response. —*Aaron Hager*

CROP DEVELOPMENT

Soybean Planting Progress Update

Most farmers finally closed the chapter on corn planting and opened the one on planting soybeans this past and current week (with a few exceptions, I'm sure). The USDA NASS Weather and Crops report indicated soybean planting was 59% complete as of June 7, which was 25% more than the previous week. The good week of progress almost caught us up with soybean planting progress for 2008, but we are still about 30% behind the 5-year average. A lot of these acres, however, have been planted around variable weather, and in many cases were planted in "questionable" con-

ditions. Make sure you continue to monitor soybean emergence rates and stand establishment—it is more important than ever due to rising soybean seed costs. Monitoring will provide valuable information for future seed-purchase and seeding-rate decisions to match the expected efficiency of your planting practices. I have elaborated on seeding rates, expected seedling development, and replant considerations in earlier issues of *the Bulletin*.

In addition to finishing soybean planting, keep in mind the development of your planted crops and the unwelcome weeds that may accompany them. One thing that has been very apparent with the later planting progress is that crops and weeds are growing rapidly, since they have ample moisture and warm and sunny days. Be sure you stage your crops and apply postemergence herbicides to manage weeds in a timely manner. You don't want to compound yield loss from weed competition on top of yield loss due to later planting.

With this in mind, as a "weekly word of advice" I want to emphasize the need to read pesticide labels, as there are still many postemergence pesticide applications to make. I know you hear this advice often, but it probably can't be repeated enough. An off-label pesticide application can result in poor efficacy, crop damage, and even legal ramifications for the applicator. So, as it's said, "Please read and follow label directions." —*Vince M. Davis*

How Much Nitrogen Do I Need?

I have received a lot of inquiries about nitrogen loss from corn fields that have received too much water this spring. The question in everybody's mind is, Do I need more? The answer unfortunately is not a simple yes or no. Even more complicated to answer is the subsequent question: How much N should I apply?

Answering these questions is challenging because the process of N loss is complex, and many variables can af-

fect N loss at different field locations. Despite these complications, farmers still need to make informed decisions in the attempt to ensure that crops will have what they need to produce high yields.

In considering whether to apply N and, if so, how much, you need to understand loss mechanisms, rely on your experience with the particular field in question, and put the two together in the framework of this spring's weather conditions. For details on N loss mechanisms, see my earlier articles in *the Bulletin* on N loss (issue 7, May 8) and N management (issue 10, May 29).

Key factors in determining whether additional N is needed are soil drainage, N source, time of application, and amount of precipitation in relation to application. Consider the following suggestions:

- In silt-loam or fine-textured fields with poor drainage, if you had excessive rain (and water sat on the field long enough to kill the crop) about 2 weeks after applying UAN or 4 or more weeks after applying anhydrous ammonia, you might consider applying 50 to 100 pounds of N per acre for the new corn crop. This situation occurs most often in low areas of a field.
- In sandy or light-textured soils, if more than 7 or 8 inches of rain infiltrated the soil (as opposed to running off the soil surface) 2 weeks after applying UAN or 4 weeks after applying anhydrous ammonia, it is likely that a substantial part of that nitrogen was leached out of the root zone. In this situation you might also consider applying between 50 and 100 pounds of N per acre.
- In silt-loam or fine-textured soils with poor drainage where a large rain event caused water to be ponded for 1 to 3 days and UAN was applied at least 2 weeks before or anhydrous ammonia at least 4 weeks before the time of waterlogged conditions, you might consider applying 30 to 50 pounds of N per acre.

Table 1. Postemergence herbicide application timings based on corn growth stage.

<i>Herbicide</i>	<i>Maximum corn heights and growth stages^a</i>
2,4-D	Broadcast before corn exceeds 8 in. tall; use drop nozzles from >8 in. to tassel emergence.
Accent, Accent Q	Broadcast up to 20 in. tall or through the V6 stage. Apply with drop nozzles when corn is 20 to 36 in. tall or before the V10 stage.
Aim EW	Apply broadcast up to the V8 stage. Use directed applications when corn is between V8 and V14.
Atrazine	Apply before corn exceeds 12 in. tall.
Basagran	No height is specified on label.
Basis	Apply to corn from spike through the 2-collar stage. Do not apply to corn having 3 fully emerged collars or over 6 in. tall.
Beacon	Broadcast between 4 and 20 in. tall. After corn is 20 in. tall or exhibits more than 6 collars, use directed applications up to tassel emergence.
Buctril	Apply prior to tassel emergence.
Buctril + atrazine	Apply before corn exceeds 12 in. tall.
Cadet	Apply until corn is 48 in. tall or prior to tasseling.
Callisto	May be applied to corn up to 30 in. tall or up to the 8-leaf stage.
Clarity or Banvel	Apply between corn emergence and the 5-leaf stage or 8 in. tall; apply 0.5 pt/A rate when corn is 8 to 36 in. or if 6th leaf is emerging, or if 15 days prior to tassel emergence. Do not apply when soybean are growing nearby if corn is more than 24 in. tall, soybean are more than 10 in. tall, or soybean have begun to bloom.
Expert (glyphosate-resistant corn)	Apply to corn up to 12 in. tall.
Glyphosate (glyphosate-resistant corn)	Apply broadcast through the V8 stage or until corn reaches 30 in. tall. Use drop nozzles for applications to corn between 30 and 48 in. tall.
Halex GT (glyphosate-resistant corn)	Apply to corn up to 30 in. tall or the 8-leaf stage.
Harmony GT XP	Do not apply to corn taller than 16 in. or 5 collars.
Hornet WDG	Apply broadcast until corn reaches 20 in. in height or V6 stage. Apply with drop nozzles to corn up to 36 in. tall.
Impact	Can be applied up to 45 days before harvest.
Laddok S-12	Applications may be made to corn up to 12 in. tall.
Laudis	Apply up to the V8 stage.
Lexar	Applications may be made to corn up to 12 in. tall.
Ignite (glufosinate-resistant corn)	Broadcast until corn is 24 in. tall or has 7 developed leaf collars. Use drop nozzles for corn between 24 and 36 in. tall.
Lightning (ClearField corn)	Apply broadcast to corn up to 20 in. tall with 6 leaf collars (V6); apply with drop nozzles beyond these stages or if crop canopy prevents adequate weed coverage.
Lumax	Applications may be made to corn up to 12 in. tall.
Marksman	Apply between corn emergence and the 5-leaf stage or 8 in. in height.
NorthStar	Broadcast when corn is between 4 and 20 in. tall (V2–V6). Use directed applications when corn is 20 to 36 in. tall.
Option	Broadcast when corn is V1 through V6. Use drop nozzles for corn greater than V6 and less than V8.
Permit	Can be applied from spike through layby.
Rage D-Tech	Broadcast before corn exceeds 8 in. tall or the 5-leaf stage; use drop nozzles for corn up to 36 in. tall or V14.
Require Q	Do not apply to corn taller than 20 in. or exhibiting 7 or more leaf collars.
Resolve	Do not apply to corn taller than 12 in. or exhibiting 6 or more leaf collars.
Resolve Q	Do not apply to corn taller than 20 in. or exhibiting 6 or more leaf collars.
Resource	Apply to corn from the 2-leaf through 10-leaf stage.
Shotgun	Apply broadcast to corn with up to 4 leaves or 8 in. tall; directed applications for 5-leaf or 8- to 11-¼ in.-tall corn.
Spirit	Broadcast when corn is between 4 and 20 in. tall. Use drop nozzles when field corn is 20 to 24 in. tall or exhibits more than 6 collars (V6).
Starane	Apply broadcast to corn with up to 5 fully exposed leaf collars (V5).
Status	Do not apply to corn taller than 36 in. or past the V10 stage.
Steadfast, Steadfast Q	Apply to corn up to 20 in. tall or exhibiting 6 leaf collars.
Stinger	Apply to corn from emergence through 24 in. tall.
Stout	Do not apply to corn taller than 16 in. or exhibiting more than 5 leaf collars.
Yukon	Apply broadcast or with drop nozzles to corn from spike to 36 in. tall.

^aWhen maximum application timings are indicated by two corn growth stages, follow the more restrictive of the two.

- In fields where the chance of N loss is low (less than 30 pounds of N per acre), there is no need to worry about applying more. This would include fields where excess soil water was present for 1 to 3 days within a week after applying UAN or urea or where anhydrous ammonia was applied less than 3 weeks before soils were waterlogged. Another situation where N loss potential is low would be light-textured soils where infiltrated rain was less than 4 inches and most of the applied nitrogen was not in nitrate form.

- What if you sidedressed with UAN or urea and had heavy rains the next day? This is a concern only if you have sandy soils. The amount of additional N needed will depend on how much rainfall occurred. If more than 7 or 8 inches of rain fell, much of the N was likely leached out of the root zone. If rainfall was 4 to 7 inches, some of the N probably leached out, and you might consider applying 30 to 50 pounds of N per acre. If there was less than 4 inches of rain, most likely additional N is not needed.

As I mentioned, these are suggestions to help you make a decision. In determining the need for additional N, make sure to prioritize which fields will need it the most. Whatever you consider most appropriate for your field, the best measure of whether enough N is available is the response of the crop. To measure this, there is no substitute for looking at the crop as it develops. One simple way to test whether the crop has sufficient N is to establish a reference strip. If you are planning to apply additional N, an easy way to do this is to apply a higher rate in one strip in each field. If you can see differences between the strip and the rest of the field, it likely indicates that more N is needed. If you determine that additional N is not necessary in your field, it might be worth your time to apply some additional N in a small area just to doublecheck. If you don't see differences, it will indicate that you have made a correct decision. —*Fabián G. Fernández*

Factors That Limit Nutrient Availability

Weather conditions this spring have caused some corn fields to appear nutrient-deficient in some portions of Illinois. Additionally, some farmers are concerned that since phosphorus and potassium applications were skipped this year (no addition of “fresh” phosphorus and potassium), their crops might not have enough, even though soil tests showed adequate levels. It is not unusual for crops in fields or portions of fields to show nutrient deficiencies even though adequate fertility and proper nutrient management plans are followed for phosphorus and potassium.

Under adequate nutrient management practices, these deficiencies are most often temporary and occur during early stages of development. What is important to remember is that in addition to inherent soil properties (parent material; amount of organic matter; depth to bedrock, sand, or gravel; permeability; water-holding capacity; drainage), environmental conditions have an important impact on nutrient availability. The fact that nutrients are applied does not necessarily mean they are available. Plants obtain most of their nutrients and water from the soil through their root systems. Any factor that restricts root growth and activity has the potential to restrict nutrient availability. This is not because nutrients are not plant-available in the soil, but because the crop's ability to take up those nutrients is restricted.

Keep the following points in mind to avoid excessive concern about the need for additional phosphorus and potassium when a sound nutrient program is already in place.

- Soil water content is critical not only to supply the water needs of the crop but also to dissolve nutrients and make them available to the plant. Temporary nutrient deficiencies can be observed when the surface layer of the soil becomes too dry and the root system of the crop is small and shallow. On the

other hand, excess water in the soil depletes oxygen and builds up carbon dioxide levels. Oxygen is needed by roots to grow and take up nutrients, while high carbon dioxide is toxic and limits root growth and activity.

- Soil compaction can limit or completely restrict root penetration and effectively reduce the volume of soil, including nutrients and water, that can be accessed by the plant. To limit soil compaction, avoid entering fields that are too wet, and minimize the weight per axle by decreasing load weight and/or increasing tire surface area in contact with the soil. Planting when soils are wet can create a compacted wall next to the seed that will prevent the seedling from developing an adequate root system. Tilling wet soils will result in clods that become hard and dry out quickly on the surface, preventing roots from accessing resources inside the clod.

- Light intensity is low on cloudy days. Low light intensity reduces photosynthetic rates and nutrient uptake by the crop. Since low light intensity sometimes occurs when soils are waterlogged or temperatures are cool, cloud cover can exacerbate the capacity of the crop to take nutrients.

- Temperature is important in regulating the speed of soil chemical and biological processes that make nutrients available. When soil temperatures are cool, chemical reactions and root activity decrease, rendering nutrients less available to the crop. Portions of the plant nutrients are taken up as roots extract soil water to replenish water lost through the leaves. Cool air temperatures can lower evapotranspiration and reduce the convective flow of water and nutrients from the soil to the root.

Diseases and pests can have an important impact on crop-nutrient uptake by competing for nutrients, affecting physiological capacity (such as reduction in photosynthesis rates), and diminishing root parameters through root pruning or tissue death. —*Fabián G. Fernández*

Taking Stock of the 2009 Corn Crop

The official estimate is that the Illinois corn crop was 93% planted by June 7. The northern 60% of the state is more than 95% planted, while less than 90% is planted in the four southern districts, especially in the southeastern part of the state. This may not count all of the replanting that still needs to be done.

One positive note is that corn now planted will soon look better as it grows quickly following the late start. In the planting date study we have here at Urbana, corn planted on April 9 is at V8 and about 28 inches tall; that planted on April 26 is at V7 and 23 inches; that planted on May 11 is at V5 and 14 inches; and the last planting, on May 30, is at V2 and about 4 inches. Temperatures have been close to normal most of the past two months, though with the usual ups and downs, including temperatures cooler than normal last week.

The need to replant corn in Illinois has generally been less this year than in 2008, but replanted acreage will still be much above normal. Corn planted within a certain time period—when planting was followed by heavy rain within 1 or 2 days—has in many fields failed to produce adequate stands. We remember the great yields from most replanted fields in 2008, and while we can't realistically hope for such yields when planting in June, we know that good weather during the rest of the season can result in good yields.

Late planting and replanting again bring up the issues of hybrid maturity and growing degree-days (GDD) we can expect from planting date to frost as well as the enduring question of when it's "too late" to plant corn. Insurance coverage complicates this question, and I do not have the ability to sort that out, especially when there seem to be last-minute adjustments in some insurance policies.

To update the numbers I provided here 2 weeks ago, modified GDD from June 15 to the 50% chance of first

frost are about 2,300, 2,500, 2,700, and 2,850 for northern, central, south-central, and far southern Illinois, respectively. These totals are for average temperatures; if temperatures are much below average, GDD totals will be 100 to 150 less.

A corn hybrid planted as late as mid-June typically needs perhaps 200 fewer GDD to reach maturity than it does if planted early. So hybrids with relative maturity (RM) ratings of 110 to 112 days planted in mid-June in southern Illinois should still mature before frost, unless frost is early or the summer is cool. Cool weather during the summer will improve yield prospects greatly if moisture is adequate, but it will both diminish the late-planting reduction in GDD requirement and delay maturity directly, so will considerably increase the chance for frost damage before maturity. Chances for that are still, however, less than chances of yield loss due to dry soils during the season.

So what is the "latest date" corn can be planted? Corn grain has been harvested from plantings in early July in Illinois, and as we saw, corn planted in the last half of June in 2008 produced good yields. On the other hand, corn planted on June 5, 2007, at Brownstown yielded less than 10 bushels per acre. So we have some idea of the range of possibilities. Based on accumulated data, corn yield approaches 50% of its maximum yield when planting is delayed to June 15–20. But past data are so variable that such predictions are likely to be inaccurate for any given year. In a recent article on farmdoc.com, ag economists here at the U of I suggested that this year's planting delays might reduce yields by about 14 bushels off the trend yield of 166. They also note, as I have said here several times, that better-than-average weather for the next three months could largely overcome this handicap. Let's hope that happens.

Even stands that are now up are not great in many fields, but most fields with stands above 20,000 to 25,000 should probably be kept now, given

the severe penalty for planting so late. Many are surprised by the fact that so many fields are missing gaps in rows and in parts of fields, often after planting conditions may, while not ideal, have seemed uniform. In most cases we think this is simply due to "drowning" of seeds, or lack of enough oxygen in saturated soils to allow germination to proceed. Some such seeds have short sprouts; others have no sprouts at all but seem to have just died suddenly. Eventually such seeds will turn mushy as microbes invade, but they will usually still be firm and appear sound right after they have died.

One of the unusual aspects of such stand reduction in 2009 has been what seems to be a random pattern of losses. In 2008 most death of seeds and seedlings took place in the low spots with standing water. In 2009, stand loss is often more randomly spread across the field, with missing segments often not well related to things we can see. In most cases the patterns are likely related to subtle differences in seedbed conditions, such as tillage, tire tracks, residue, and the like, which are not visible at or after planting. As an example, in our strip-till comparison here at Urbana, tilled plots have very good stands while strip-tilled plots have stand reductions of at least 30% in some places in the field. The difference was likely a combination of slightly wetter soils in the strips and the slightly greater amount of residue near the surface after planting in the strips.

Damage from birds or rodents is also considerable in some fields this year. The pattern of missing row segments might be similar to that described above, but animals often leave the plant or seedcoat behind when they eat the starchy part of the seed. Such damage also tends to be worse near field edges, though in one of our fields here it is more spread across the field and seems to be related to slight differences in seed placement. Rodents are very good at selecting "choice" plants, probably by smell, and those planted slightly shallower might be eaten preferentially. Birds can pull up seeds or plants anywhere in the field.

Once plants reach V2 to V4, damage from birds and rodents should stop. — *Emerson Nafziger*

Wheat as Harvest Approaches

After a good winter and early spring, wheat crop prospects have taken a considerable nosedive in Illinois due to frequent bouts of wet weather over the past 6 weeks. Carl Bradley has described the diseases that are prevalent in many southern Illinois fields. I have not yet seen the variety trials in southern Illinois, but reports are that diseases will take a serious toll on most of the wheat crop in the areas where most of the crop grows.

Heading ranged from normal to several days later than normal in Illinois wheat this year. As is usual for years with too much rain in May, diseases are causing accelerated maturity as leaves and heads start to die in southern Illinois. Harvest will begin soon, if it hasn't already.

With so much of the soft red winter wheat in areas with high levels of *Fusarium* head blight (FHB, or scab), the prospect of high vomitoxin (DON) levels in the harvested grain has wheat millers very concerned. In fields that experienced rainfall throughout much of the flowering period, FHB infection was early and severe, and most of the infected kernels will have failed to develop. These will typically be blown out of the combine and so will not contribute much to the DON level in the grain. When the infection spreads after flowering to kernels that remain in the harvested grain, they can have very high DON levels, which can lead to large dockage or even refusal of the grain at the elevator. One feature of DON is that it can be very high in a small proportion of the kernels, making the whole lot exceed the threshold for marketing for certain uses. Unfortunately, such kernels may have the same size and density as uninfected kernels, so it may be impossible to separate them out.

There's no way to reduce the amount of DON that will develop in infected

kernels, but raising the amount of air used in grain separation during harvest can blow more light kernels out, so may reduce the overall level of DON. This of course leaves more grain in the field and reduces harvested yield. In a high-DON year, such yield loss can easily be compensated for by lower DON levels and higher price of the delivered grain. Another approach might be to have DON tested following harvest and then run the grain through a postharvest separation (perhaps using seed-cleaning equipment) to see if levels can be reduced enough to lower the dockage or to at least make the grain salable.

In central and northern Illinois locations there was less rainfall during flowering, so crop conditions look much better now. Our research trials at Urbana have very low levels of FHB and seem to be maintaining reasonably healthy leaves as grain-fill progresses. If DON levels are high in other areas of the soft wheat area, wheat with low levels might be a sought-after commodity this year. — *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

Corn planting is complete. Some fields planted the second week of May exhibit some uneven growth and in some instances less-than-ideal populations. Emergence is fairly uniform between earlier-planted and later-planted corn. Numerous fields have yellow plants, usually in the lower areas of the field, due to excessive soil moisture or several ponding events over the last 3 weeks. Herbicide injury in overlap areas is more apparent than in recent years. Soybean planting is over 95% complete in the western portion of the region and approaching 95% in the eastern portion.

Rainfall during the early morning hours of June 8, up to 1.5 inches in some areas, has halted field work for the present time, but many producers finished planting during the previous weekend. Jim Morrison, extension crop systems educator, reported observing some foliar feeding from black cutworm larvae but no cutting in corn. Jim also observed widespread slug damage in a Winnebago corn field.

Considerable alfalfa was cut last week, but some still remains. Drying conditions for baling alfalfa have been very poor during the past week.

Just a reminder that a small grains program will be held Thursday, June 25, at 5:30 p.m. at the University of Illinois Northern Illinois Agronomy Research Center, Shabbona. The session will focus on small grain variety selection, disease management, and best management practices. The program, co-sponsored with the Illinois Wheat Association (IWA), will begin

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with a pork chop sandwich meal. To assist with an accurate meal count, please preregister by contacting IWA at 309-557-3662. The cost is \$5; Certified Crop Adviser CEUs have been applied for.

Southern Illinois

Storms throughout the region are becoming more scattered, so field conditions have become more variable. While no area is by any means dry, there are spots where some field work can resume, though other areas remain totally saturated. Severe storms ripped through the northwestern part of the region on Monday, bringing heavy rain, hail, and tornados.

Crop conditions are highly dependent on field drainage. Poorly drained corn fields have become extremely uneven and are showing the effects of poor soil aeration and nitrogen loss. Wheat in poorly drained areas has simply died. A planted soybean field is hard to find.

West-Central Illinois

Progress has been slow but steady in the west-central region over the last week, with rain once again hindering efforts to finish up planting. Corn is about wrapped up, with some progress still needed for beans. Corn maturity ranges from just germinated to 7 leaves. Beans range from germinated to a couple of trifoliates. Producers were able to squeeze in some activity in hay, with some alfalfa now baled. There is evidence of European corn borers and some evidence of leaf disease in the area.

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