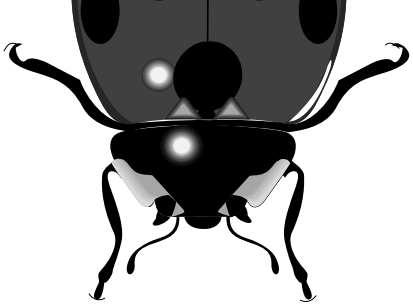

PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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In This Issue

INSECTS

Japanese Beetles Are Relentless in Many Areas of Illinois

The numbers of reports about problems with Japanese beetles have escalated during the past couple of weeks, and the reports just keep on coming . . . and coming . . . and coming (to paraphrase the Energizer bunny). The densities of this pest seem to be at an all-time high in many areas of Illinois. In some areas, Japanese beetles are showing up for the first time—and they're showing up with a vengeance. Defoliation of ornamentals and trees has been widespread, and defoliation of corn and soybeans continues. In previous issues we stated that defoliation of corn by Japanese beetles usually is not problematic. However, in fields in which corn is showing obvious signs of moisture stress (i.e., lack of moisture), heavy defoliation could exacerbate the problem, resulting in additional yield loss. Unfortunately we have no guidelines for treatment of Japanese beetles defoliating corn. Use your best judgment.

Most people are aware of the traps used to capture Japanese beetles. Not surprisingly, Ron Hines, senior research specialist at the University of Illinois Dixon Springs Agricultural Center, has decided to add Japanese beetle traps to his arsenal of traps for capturing insects. The area in which Ron works (Pope and Massac counties) has not had much of a history of infestation of Japanese beetles, but that situation has changed in 2002. Ron reported capturing about 600 and 300 beetles per trap per day in two different sites in Pope County. In Massac County, he was capturing about 80 Japanese beetles per trap per day. And apparently in an attempt to develop a threshold (or to keep a technician busy), Ron determined (from 28 100-beetle samples) that the average weight of 100 Japanese beetles is 8.25 grams, or 0.0825 gram per beetle.

Certainly not to be outdone, John Lilienthal, with Pioneer Hi-Bred International, told me that during 1 1/2 days of operation of one Japanese beetle trap in the Kankakee area, he measured 6 gallons of beetles. Because these traps are effective for attracting and capturing Japanese beetles, large captures are not unusual. However, the numbers of Japanese beetles in Illinois this year seem to have reached historic proportions.

In previous articles about Japanese beetles in the *Bulletin* (issue nos. 13 and 14, June 28 and July 5, respectively), we have provided details about thresholds and suggested insecticides. However, it's important to note that some frustrations with control efforts are likely. Because Japanese beetles emerge over time, an insecticide applied early may not last long enough to control later-emerging beetles. Also, when temperatures are high, pyrethroid insecticides (e.g., Ambush, Asana, Capture, Pounce, Warrior) may lose some efficacy. And when insecticides are applied during silking, the lengthening of the silks exposes silks on which insecticides are not present. All of these factors may challenge control of Japanese beetles, so be patient, and don't expect 100% control, which is not required to protect the crop.—*Kevin Steffey*

Rootworm Insecticide Performance Is Poor in Some Areas of Illinois

During the past couple of weeks, we have received more than a typical number of reports of poor performance of soil insecticides for rootworm control. Although this is unfortunate, it's not very surprising. The densities of western corn rootworm adults in north-central, northeastern, and eastern Illinois in 2001 were extremely high. Obviously the weather during the winter did nothing to suppress rootworm populations. And then to add insult to injury, corn was planted late or grew slowly during the cool, wet conditions that prevailed in May and early June. Although late-planted corn often escapes severe rootworm injury in the Midwest, the cool soil temperatures also delayed hatch of rootworm larvae and slowed larval development. The end result of all of this is that a whole lot of larvae survived and began feeding on corn plants when the root systems were not well established. And finally, the recent hot, dry weather has compromised efficacy of insecticides applied at planting time.

Reports of very heavy infestations of corn rootworm larvae are numerous, especially in northeastern and north-central Illinois. John Lilienthal, with Pioneer Hi-Bred International, found as many as 46 larvae per root system in a field near Kankakee. Others have noted similar numbers.

Unfortunately, when farmers experience poor control of rootworms with soil insecticides, they often discover it too late to do much about it. Some people have applied "rescue" treatments in fields where the insecticide applied at planting did not work, and others are considering it. I want to reemphasize that this is not a good idea, especially now. In cornfields where an insecticide can be directed to the bases of the corn plants and cultivated into the soil in June, rescue treatments offer some protection. In tall cornfields with mature rootworm larvae in June, rescue treatments usually are a waste of money. This is especially true when the soil is dry. Although folks may get a little satisfaction from the prospects of revenge, I strongly discourage spending any more money for rootworm larval control at this time of year. I know this is tough news to hear and dispense, but research data suggest that attempting to control rootworm larvae in dry soils in July is fruitless.

As people continue looking for rootworm larval damage throughout July, it might be useful to be able to categorize the damage. Entomologists have used root-rating scales for years to assess rootworm larval damage to individual plants. The "old" 1–6 root-rating scale was developed at Iowa State University, which dates back more than 30 years (published in a scientific journal in 1971). The process is simple. After you extract roots from the field, wash off the dirt so that you can see the roots and rootworm injury clearly. Examine the roots for the overall amount of injury and assign a rating to each root. An explanation of the rating scale follows, and schematic illustrations of root ratings 2, 3, 4, and 5 are shown in Figure 1. In addition, you can access a brief video of the root-rating process from the

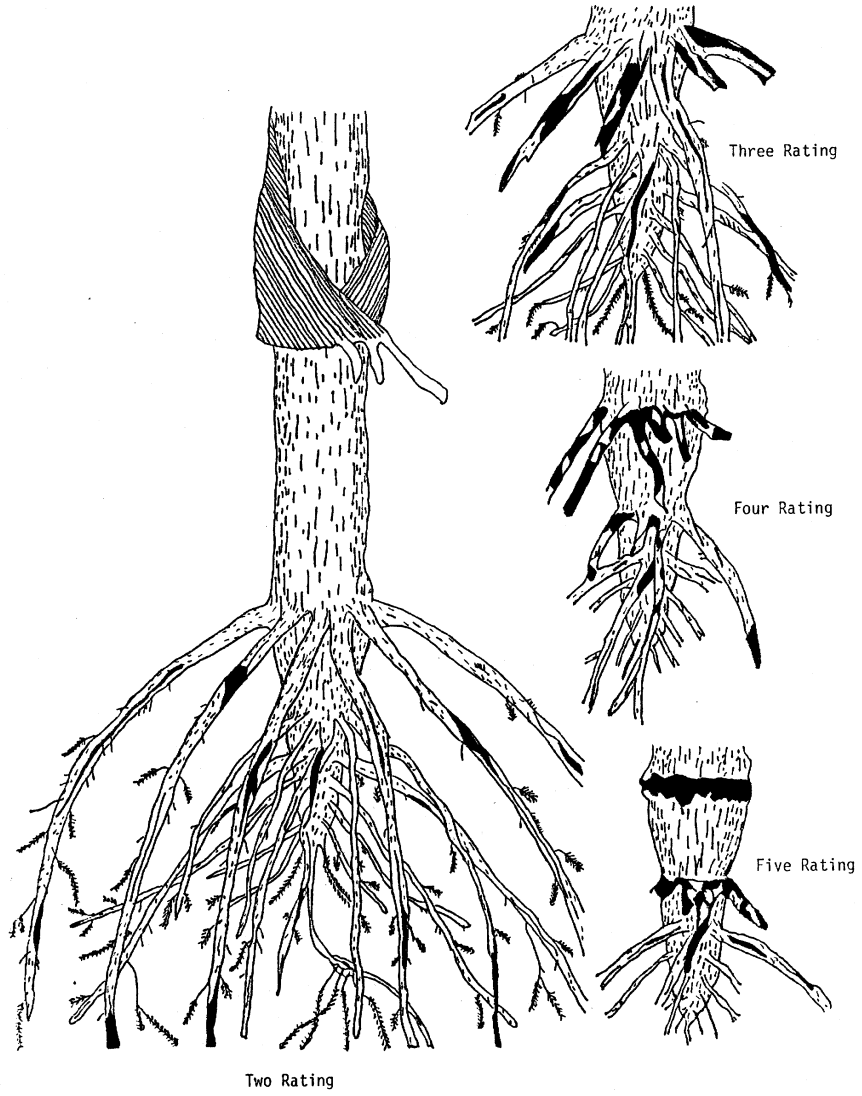

Figure 1. Schematic illustrations of root ratings 2, 3, 4, and 5 from the Iowa State University 1–6 rating scale for rootworm larval injury.

Web: http://www.ipm.uiuc.edu/publications/videos/corn_rootworm/root_rating.html. We hope the video, which was prepared and edited in 1999, adds some instructional insight.

The Iowa State University 1–6 root rating scale is characterized as follows:

1—No visible damage, or only a few minor feeding scars.

2—Some roots with feeding scars, but no roots eaten off to within 1 1/2 inches of the plant.

3—Several roots eaten off to within 1 1/2 inches of the plant, but never the equivalent of an entire node of roots gone.

4—The equivalent of one node of roots pruned off to within 1 1/2 inches of the plant.

5—The equivalent of two nodes of roots pruned off to within 1 1/2 inches of the plant.

6—The equivalent of three or more nodes of roots pruned off to within 1 1/2 inches of the plant.

More recently, entomologists at Iowa State University have developed a "new" node-injury root-rating scale to assess the level of rootworm larval damage to individual plants. The node-injury scale describes the degree of root pruning more precisely than the 1–6 root-rating scale. The node-injury scale includes both the number of nodes of roots completely destroyed (0 to 3, the number to the left of the decimal) and the percentage of a node eaten (0.01 to 0.99, the number to the right of the decimal).

Regardless of the root-rating scale you use, you should assess the level of damage within a given field by examining several root systems. Add all of the ratings of roots from an individual field and divide by the number of roots examined to obtain an average root rating or node injury for the field. If you are comparing the efficacy of different treatments or comparing roots from a soil insecticide–treated area of the field with roots from an untreated check strip, follow the same procedure to obtain averages for the different treatments. Such comparative root ratings may provide insight for future reference.

In general, a root rating of 3.0 or higher on the 1–6 root-rating scale and a node-injury rating of 0.5 or higher on the 0–3 node-injury scale suggests that economic damage may have occurred. However, as most of you know, these economic indexes may differ among hybrids and during stressful environmental conditions. A few years ago, Mike Gray and I conducted a detailed, multiyear study of the interaction of different hybrids, rootworms, and environmental conditions in DeKalb and Urbana. We learned that different hybrids respond differently to rootworm larval damage and that the response was affected by environmental conditions. For example, during one year when growing conditions were stressful, economic damage occurred with some hybrids when the average root rating was only 2.5 (on the 1–6 root-rating scale). When growing conditions were more favorable, economic damage did not occur with the same hybrids until the root ratings were 4.0 or higher.

As you assess rootworm larval damage and performance of insecticides, try to consider as many factors as possible to determine whether yield will be affected. When we have information from our rootworm insecticide efficacy trials, we will share the results.—*Kevin Steffey*

A Few Insect "Thumbnail" Reports

- Mark Fromme, with Lincoln Land FS, recently observed a fairly significant number of corn leaf aphids in late–whorl stage corn in his area. He estimated that 20 to 25% of the plants were infested. In areas of Illinois where moisture is lacking, people will need to be vigilant for corn leaf aphids, especially during pollination. Large colonies of corn leaf aphids can interfere with pollination. In addition, the aphids' feeding habits (sucking water and nutrients from the plants) make matters worse during hot, dry weather. As you scout for corn leaf aphids, keep an eye open for lady beetles, which are very effective predators.
- John Shaw, research scientist with the Illinois Natural History Survey, has been capturing large numbers of grape colaspis adults in emergence cages during the past couple of weeks. Although the cages are designed to capture corn rootworm adults, thus far he has captured far more grape colaspis adults. You will begin finding these insects in both corn and soybeans in July, so watch for them. They resemble corn rootworm adults in size and shape, although they are a bit more "domed" in appearance. The grape colaspis adult is oval, tan, and about 1/6 inch long with rows of tiny punctures on its wing covers, making them appear ridged.
- Grasshoppers continue to create concern in many areas of Illinois, especially in southern and western counties. We have received some reports that they have begun moving into crop fields. If the hot, dry weather continues, their movement into crop fields will accelerate. Keep scouting.
- Potato leafhoppers started slowly this year, but they're making up for lost time. Densities in many alfalfa fields are well above established economic thresholds. Potato leafhoppers also are showing up in and causing injury to soybeans. Although their injury to soybeans usually is not economic, current growing conditions may warrant a closer look at leafhoppers in soybeans.
- The flight of southwestern corn borer moths that will lay eggs for the second generation has begun in southern Illinois. Ron Hines, senior research specialist at the University

of Illinois Dixon Springs Agricultural Center, has begun to capture large numbers of moths in his traps (refer to "The Hines Report" located on the Web at http://ipm.uiuc.edu/publications/hines-report/). People in southern counties should begin scouting cornfields for egg masses of southwestern corn borers. We will provide control recommendations in the next issue of the *Bulletin*.

- The hot, dry weather (I'm sounding like a broken record) is encouraging buildup of twospotted spider mites in the margins of soybean fields in some areas of Illinois. Remain watchful; their numbers can increase in a hurry under the current environmental conditions.

Thanks for all of your input and feedback thus far this year. We hope the sharing of reports from around the state is useful.—*Kevin Steffey*

WEEDS

Soybean Leaf Cupping

Reports have been received from across much of Illinois about soybean leaves that are cupped. This phenomenon is not unique to the 2002 growing season, and soybean leaf cupping has been a common occurrence for several years. We've addressed this issue in previous years' editions of the *Bulletin* and will present the information again.

The most frequently reported scenario is that symptoms are noticed after the soybean field has been sprayed with a postemergence herbicide. We've observed leaf cupping in as few as 3 days following a postemergence soybean herbicide application, but in other cases no symptoms were evident for up to 3 weeks after the postemergence soybean herbicide application. And, yes, entire soybean fields have demonstrated leaf cupping where no postemergence herbicide has been applied.

The symptoms that have been reported include the following:

1. Extreme cupping of trifoliolate leaves is observed, usually most pronounced on the upper trifoliolates.

2. Veins of affected leaves tend to assume a parallel orientation instead of the usual net veination pattern.

3. Tips of cupped leaves with parallel veins are often brown.

4. Plants are stunted as compared with plants not demonstrating the aforementioned symptoms; these plants may remain stunted for several weeks, but this does not always happen.

The most difficult issue to determine with respect to cupped soybean leaves is identifying the cause or causal agent(s). Several *theories* have been proposed by weed scientists across states in the north-central region and are presented here. *It is very unlikely that only one of these will explain the cause of cupped soybean leaves in all instances.*

1. *Somehow the soybeans have been exposed to a growth-regulator herbicide used for weed control in corn.* The growth regulator herbicides tend to mimic the effects of endogenous plant hormones, auxins in particular. Plant hormones control many developmental processes affecting the growth of the plant. These hormones are physiologically active within the plant at extremely low concentrations (parts per million or billion); exposing a soybean plant to a synthetic type of hormone (i.e., a plant growth regulator herbicide) can induce a wide range of responses within the plant, ranging from slight morphological modifications (leaf abnormalities, for example) to plant death. The degree or severity of response is partially dependent on the concentration of herbicide the plant was exposed to, as well as environmental conditions and crop variety. The literature has many references to research conducted on the response of various crops to exposure of sub-lethal amounts of various growth-regulator herbicides. Most of these studies were conducted more than 20 years ago, but the symptoms of exposure these studies describe are very similar to those encountered during this and previous growing seasons.

How much (concentration) growth regulator does it take to induce symptoms? Dicotyledonous plants can and do vary in their sensitivity to growth-regulator herbicides. Sensitivity of a particular plant species can also vary by growth-regulator herbicide. For example, many species of the Polygonaceae family are more sensitive to dicamba than to 2,4-D. Stage of plant growth when exposure occurs can also influence the amount of injury induced. Several studies in the literature report that soybeans were more tolerant to exposure to growth regulators when in early vegetative development as compared with exposure when the plants were larger and nearing the reproductive stage.

The herbicide most often discussed or implicated in the cupping response of soybeans is dicamba. How would soybeans be exposed to this corn herbicide? Three possible avenues of exposure are listed below.

a. *Residues remaining in/on the spray equipment from previous applications in cornfields are detached and applied with the soybean herbicide at low concentrations.* Labels of products containing dicamba provide techniques for cleaning application equipment to remove residues. If these cleaning procedures are not followed exactly, how much residue would remain in the application equipment, and would it be enough to cause injury to soybeans? Many producers and applicators who reported cupped soybean leaves in the past indicated that the symptoms appeared to follow the spray equipment "to the row." Drift (discussed next) generally does not stop at a selected row in a field. Rather, a feathering effect often occurs—symptoms are most severe on the side of the field closest to the source of drift and lessen with increasing distance. Unfortunately, failure to thoroughly clean the application

equipment does not always appear to explain the reported cases of "the soybeans sprayed with the first load cupped, those sprayed with the second and third loads are fine, but the ones sprayed with the fourth load cupped" when all other factors are held relatively constant.

b. *Herbicide vapors on the plant or soil surface move out of the treated area and are absorbed by soybeans (vapor drift).* The volatility of a herbicide is a function of several factors: those related to the formulation of the herbicide and those related to prevailing environmental conditions. Vapor pressure is a measure of the tendency of a herbicide to volatilize. As the vapor pressure of a herbicide increases, the potential for volatility also increases. Ester formulations of 2,4-D are generally more volatile than amine formulations. Banvel is formulated as the dimethylamine salt of dicamba, Clarity as the diglycolamine salt, and Marksman as the potassium salt. Each of these salt formulations differs in its potential to volatilize. With respect to environmental conditions, volatility tends to increase as soil moisture and temperature increase. As soil moisture decreases, the amount of herbicide adsorbed to soil particles can increase and thus reduce the amount of herbicide available to volatilize.

c. *Physical drift of spray particles during the actual application process.* This cause of exposure may be the easiest to identify based on field observations. The labels of many postemergence herbicides have statements regarding wind speed and drift. Most specify that applications should not be made when wind speed is in excess of *x* miles per hour or moving toward a sensitive crop. Soybeans exposed to growth-regulator corn herbicides through drift will usually have been exposed to a much greater amount of herbicide than if the exposure had occurred via the processes outlined previously in *a* or *b*. The symptoms from exposure to high doses are often different from those caused by exposure to very low doses.

2. *The soybean plant is expressing a physiological response to adverse growing conditions.* This *theory* generally attempts to exclude exposure to a growth-regulating herbicide as the causal agent. Rather, soybeans express leaf-cupping symptoms due to environmental factors that adversely impact growth. Very few components in the cupped soybean leaf "equation" have held consistent over the past several years, except that the majority of cases are not noticed or reported until after the first few days when air temperatures exceed 90°. Soybeans may be entering into a phase of very rapid growth and development, and some speculate that adverse environmental conditions during this phase of growth may disrupt the hormonal balance within the plant. This *theory* has been proposed to attempt to explain instances of cupped soybean leaves that had not been sprayed with any postemergence herbicide and no cornfields were nearby. However, no data are available in the literature to support this theory.

3. *The response is induced by a postemergence soybean herbicide application.* The majority of soybean samples received at the Plant Clinic demonstrating leaf cupping were previously treated with a postemergence herbicide, usually a translocated herbicide such as Raptor, Synchrony STS, Classic, FirstRate, or a glyphosate-containing product, but in some instances a contact herbicide. Many of these applications include spray additives such as crop oil concentrates (petroleum or vegetable base) and an ammonium nitrogen fertilizer (28% UAN or ammonium sulfate). How can these applications induce leaf cupping? Some *theoretical* explanations include the following.

a. Translocated herbicides move into the apical meristem, the location of hormonal control, and disrupt the hormone balance of the plant. Following the disruption of hormonal balance, the plant may exhibit an abnormal growth response such as leaf cupping.

b. The spray additives are able to remove dicamba residues from the spray equipment (see *1a* above).

c. If 28% UAN was used, the level of biuret may be high enough to induce the response.

So what exactly is the cause of cupped soybean leaves? It is unlikely that one "blanket" explanation exists—each case may be somewhat unique. Data exist that describe the response of soybeans to growth-regulator herbicides, but other factors may also be at work. If cupped soybean plants were actually exposed to a plant growth regulator herbicide such as dicamba, will yield be adversely affected? The available literature tends to suggest that this type of injury does not always necessarily result in soybean yield loss, but several factors are involved in determining if yield loss will occur. In particular, soybean variety, time of exposure, and dosage are important factors that determine if yield loss will or will not occur. Much of the available literature suggests that if minor exposure occurs during early vegetative development, yield loss is less likely to occur than if exposure occurs when soybeans have entered the reproductive stage of development.—*Aaron Hager and Christy Sprague*

CROP DEVELOPMENT

Stresses Build on Crops

The last rainfall of more than 0.05 inch at Urbana came on June 14, and 9 of the 10 days through July 8 at Urbana have had high temperatures of 90°F or higher. Night temperatures over those same 10 days have ranged from 67° to 76°F, with an average of 71°F. The early corn is beginning to pollinate, while the later-planted corn is rolling its leaves, often before midmorning. Although we know that some other parts of Illinois have enjoyed more rainfall than we have received in the east-central area, we know that prospects for the 2002 corn crop in Illinois are starting to be seri-

ously compromised by weather. Here are some thoughts and observations:

How much has the corn crop been hurt so far?

Despite the gloom expressed in the opening paragraph, we still have the potential to produce a good crop in Illinois in 2002, though the chances of its being as good as the 2001 crop are probably zero. Stands are mostly good, and in areas that have received some rainfall root systems have probably gotten enough of a boost to extend into the water that is stored in the soil. Compared to very dry springs (such as 1988), stored soil moisture is in good supply from the spring rainfall. The early-planted crop has been able to tap this moisture and is entering the pollination period in reasonable shape in many fields. Still, a month without rain takes its toll, and it is likely that the stress so far will have some effect on yield of the earliest corn. Corn planted in early April at Urbana had silks emerge about July 6, which was about 2 or 3 days after pollen shed began. That's not unusual, but pollen shedding was heavy, and it probably will not last as long as it would have under cooler temperatures. Silks are also under pressure from Japanese beetles and rootworm adults, so fewer kernels could set than might have set without this additional stress. The biggest problem with early-pollinating corn may well be kernel abortion, which could be substantial if we continue for another week or more without rainfall.

Unfortunately, the late-planted crop, much of which was planted with some degree of soil compaction, was not able to grow its root system deep enough to tap the soil moisture very well. As a result, it has undergone visible stress (leaf rolling) "early and often," and it's fair to say that it has probably not been able to photosynthesize at full rates for most of the past 2 weeks. A corn plant with rolled leaves is surviving until the next day but isn't doing much else; it can't grow if it can't photosynthesize. Plants whose leaves roll in the morning are not taking any advantage of the brightest sunshine that day. Warm nights (minimum temperatures above the low 60s) also hurt in that they speed up the respiration, thus wasting some of the sugar that the plant was been able to produce during the day. About the only hopeful thing we can say about the late-planted crop is that it still has some time before it reaches its critical pollination stage. Rainfall anytime in the next week or 10 days will help this crop a great deal. But late pollination means late grain filling, and unless the weather pattern changes drastically kernel number and final size will be reduced in the late-planted crop.

Is it the heat or the dryness that's causing the problem?

Although I see little evidence that we can do much about either rainfall or temperature, the answer to that question is definitely "dryness." Daily high temperatures in the low 90s are very favorable for photosynthesis, providing that the crop has adequate soil moisture to keep water streaming through the plant and out through the leaves (as water vapor) during daylight hours. A full canopy in July requires almost as much water as an open pan would evaporate on that day, which is between 0.25 and 0.3 inch on a warm, sunny day. That's why we have corn still able to pollinate after 25 rainless days—it has probably tapped about 5 inches of stored soil water so far. Even the best soils, though, cannot store much more than a month's worth of water for the crop, so we are dangerously close to running out of stored water for the largest corn in the driest areas.

How much longer can the crop "hold out"?

Under extreme and long-running lack of rainfall in 1988 (it rained less than a half inch from May 22 to July 14 at Urbana that year), the crop survived and was even able to pollinate and form small ears after several weeks during which it did little but survive. That's more extreme than we have experienced (or that I hope we experience) this year. It does give us a hint that the crop may have more resilience than we credit it with. Part of the reason for this is that the research that has been done on the effects of short periods of drought on corn yield potential has been done by "artificial" imposition of water deficits in the plant, usually by methods that allow water supply to be cut off and restored very quickly. Plants in the field usually develop water deficits slowly and so are probably able to make some adjustments that they can't make in the research studies that have been done. Still, a week or two with little photosynthesis means that the crop simply is not using the resource (sunlight) it's designed to use, and that cannot help but decrease yield potential unless the weather turns extremely benign during the next two months.

Is there anything we can do?

We can only watch and hope for rain (and, if we're so equipped, throw the switch on the irrigation pump). It is instructive to walk in the fields to see what effect lack of water has had on the crop so far. Some of this is subtle, but if the internodes are shortened, it means that the crop has undergone several weeks of serious stress, during which plants either do not fully hydrate during the night or photosynthesis rates are inadequate for growth even if there is water "recharge" at night. Internode shortening does not by itself decrease yield potential much, but very dry conditions can decrease even the size of leaves and the lack of a full canopy usually decreases yield potential. The key thing to look for, though, is the appearance of tassels, pollen, and silks. Dry weather often throws off the normal timing of the appearance of these, and in extreme cases, tassels may emerge and shed all their pollen (it usually takes 5 or 6 days but can be a shorter time if temperatures are very high) before any silks emerge.

The primary key for success in pollination, though, is the appearance of ear shoots and silks. If tassels are out and shedding pollen but ear shoots do

not seem to be emerging from the ear leaf sheath, then there is little hope that the plant can "push" ear shoots and silks in time to receive pollen. When plants are able to muster enough water to push ear shoots, they usually can push some silks as well; but studies have shown that silk elongation is one of the most water-sensitive processes in the corn plant. Once silks do struggle out, of course, they need to be protected from insects that can chew them off. Cutoff silks can receive pollen, but the "target" offered by the cut ends of silks is much smaller than that offered by the normal mass of silks; so successful capture of pollen by the silks is much less certain, even if the plant still has pollen to be shed. One very slight positive effect of early-season unevenness in growth might be a modest extension in the pollen-shedding period this year. It isn't much, and it won't solve yield loss by the late-emergers; but it might provide pollen to some last-minute silks.

Is there anything we should have done differently to prevent these problems?

No. Until and unless we can get accurate seasonlong weather forecasts (and with the forecast for the next 12 hours changing as it often has in the past weeks the chances do not look good), we need to manage in anticipation of average weather conditions. We warned about planting before soils were dry enough when planting was delayed in May, and most people exercised reasonable care in getting the crop planted, even though many fields were compacted. We are reminded once again that weather can override almost everything we do to manage a crop. We still have to manage astutely, though, or poor weather will cause even more damage; and, worst of all, a poorly managed crop won't be able to take advantage of good weather.

What about soybean?

With smaller root systems than corn, soybean is also not in a good position to tap soil water very well. Fortunately, its delayed canopy development has meant lower water-use rates, and so far the crop seems to be growing, at least slowly. Much of the crop has reached flowering, even though many fields are less than 12 inches tall and probably have only four or five trifoliolate leaves emerged. In our planting date study at Urbana, the plots planted on April 5 are almost 30 inches tall and are starting to set pods, but marginal water supplies have caused the leaves to be smaller than normal, and the plants have not filled the middles of 30-inch rows. Narrower rows will fill better and should not have this problem. And, if we get some rainfall, soybean will respond well. In general, soybean plants are not yet into critical stages, and yields have probably not been limited much, if any, by weather so far.—*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

Hot and dry conditions continue to persist throughout the region. Some areas received 0.5 to 0.7 inch of rain on July 8, but the precipitation was spotty. Several reports of erratic weed control from the dry, hot conditions have been reported. These situations occurred in postemergence soybean herbicide applications. Cupping of soybean leaves, which mimics herbicide drift injury, is very common throughout the region.

Generally, most corn is several weeks from pollination. Producers are encouraged to scout fields during that time for Japanese beetles and corn rootworm beetles, which may cut corn silks, interfering with pollination.

West-Central Illinois

Hot and dry conditions continue to stress crops in the west-central region. Scattered rainfall on Tuesday offered relief for some areas, but precipitation was spotty and light. Rainfall is in the forecast for the next few days, but the chance for rain ranges only from 30% to 60%.

Early-planted corn looks good for the most part, while later-planted corn is showing signs of moderate to severe drought stress (i.e., delayed development and rolling and firing of lower leaves). Many soybeans are blooming, and most postapplications of herbicide have been made, but a significant portion of soybean acres is still in the first stages of development. Some reports have been received of reduced efficacy of recently applied glyphosate, most likely a consequence of unfavorable growing conditions. Many rowed beans have yet to canopy, and it appears that some wide-row beans may not attain full canopy closure this year.

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The second cutting of alfalfa is progressing well, and many producers have been baling oat hay within the past week. Oat grain harvest should begin shortly.

Insect pests do not appear to be of any consequence, but growers and industry personnel alike are monitoring grasshopper populations in pastures and field edges and scouting closely for signs of spider mite infestations in soybeans.

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