INSECTS

Still No Widespread Issues with Insects in Field Crops

Extension field crop entomologists in the north central region participated in a teleconference on June 9, and most state reports had the same theme: not much happening insect-wise. The history-making wet weather is dominating conversations and media discussions focused on agriculture, and under the circumstances, insects rank fairly low on the list of concerns. Following are capsule reports on insects deserving some attention, including some reports of “firsts” for 2008.

Armyworms in wheat. Entomologists in Indiana and Ohio indicate that armyworms in wheat may be the “biggest insect story” in their respective states, but they also indicated that economic problems are not widespread. We recently received a couple of reports of armyworms feeding on flag leaves or otherwise present in wheat. The reports were from Illinois counties in the south (refer to Ron Hines’s June 10 comments in “The Hines Report,” ipm.uiuc.edu/pubs/hines_report) and west–southwest (Lisa Coorts, Maxi-Yield Consultant Service, Carlinville). Feeding by armyworms on flag leaves and on the peduncle below the head can result in significant yield losses if infestations of the caterpillars are heavy.

Bean leaf beetles in seedling soybeans. Reports of bean leaf beetles feeding on seedling soybeans are scattered throughout the Midwest, although there have been few reports of significant feeding injury. Remember that the earliest planted fields are most likely to be noticeably infested by the beetles that have emerged from hibernation quarters this spring. Also remember, however, that economic damage usually does not occur unless densities of bean leaf beetles are high. Current commodity prices and stress on the young plants justify some tinkering with economic thresholds, but reason should prevail.

Black cutworms in corn. The most prevalent insect problem this spring has been black cutworms feeding on seedling corn, but we have fallen far short of a widespread outbreak. Nonetheless, recently planted corn or corn in fields that will be replanted will be vulnerable to black cutworms for a while. We have written several articles about black cutworms and their management in previous issues of the Bulletin this year (e.g., issue No. 9, May 23, 2008).

European corn borer adults. Several people throughout the Midwest have reported the first captures of European corn borer adults in traps this spring, so we know the flight of females that will lay eggs to initiate the first generation is underway. Remember that these females will seek taller cornfields for laying eggs, and larvae will not survive well on smaller corn plants.

Japanese beetle. Ron Hines (FS seed agronomist, southern region, Growmark) reported the first Japanese beetles of the season captured in a trap in Franklin County on June 10. In “The Hines Report,” Ron indicated that this
first capture in 2008 is approximately 10 days later than the first capture in 2007. We will have to observe carefully as Japanese beetles continue to emerge and begin seeking food. Pollinating corn (can we imagine that yet?) and flowering soybeans will be at risk if lots of Japanese beetles survived the winter temperatures and this spring’s excessive rains.

Soybean aphids. David Voegtlin, entomologist with the Illinois Natural History Survey, recently completed a tour of buckthorn sites in Illinois, Indiana, Michigan, and Ohio. He was looking for soybean aphid colonies on buckthorn plants. In his words, “We managed to find some colonies at every major Rhamnus cathartica [common buckthorn] location that we visited from N.E. Indiana to S.E. Michigan/Toledo to Moline, IL.” The colonies were small and uncommon, for the most part, but alatoid nymphs (nymphs that will mature into winged adults) were found at all locations, indicating that the aphids were preparing to fly to soybean fields. Finding suitable soybean fields in some areas of the Midwest will prove to be a challenge for soybean aphids. There will be more on this topic in a near-future article in the Bulletin.

Entomologists at Michigan State University and the Ontario Ministry of Agriculture, Food and Rural Affairs have already found soybean aphids on very small soybean seedlings, similar to their findings in 2007. It remains to be seen what will develop elsewhere, with initially low numbers of soybean aphids and not many suitable soybean fields at the time of the aphids’ migratory flights.

In “The Hines Report” for June 10, Ron also notes captures of adult corn earworms and southwestern corn borers, both of which can cause problems in cornfields, especially in southern Illinois. So there are plenty of insect pests to consider at the moment, but hardly any that are significant, imminent threats to corn or soybean production. — Kevin Steffey

### Standing Water, Corn Rootworm Survival, and Insecticide Performance

As mentioned last week in the Bulletin (www.ipm.uiuc.edu/bulletin/article.php?id=950), corn rootworm larvae were detected in central Indiana on June 4, and Larry Bledsoe of Purdue University estimated that hatch most likely occurred on June 2. This year’s hatch coincided with heavy precipitation across much of the Corn Belt and has resulted in many fields left with standing water for several days to over a week in some cases. Corn rootworm larval survival will be very poor in those ponded areas of fields.

So should producers be concerned about soil insecticide or Bt performance with respect to corn rootworms? A look back to 1993, a year when many areas of Illinois also received excessive rainfall, may help answer this question, at least with respect to soil insecticides.

In 1993 we planted our corn rootworm soil insecticide efficacy plots on May 13, 17, and 14 near Champaign, DeKalb, and Monmouth, respectively. Collective precipitation totals for May, June, and July were 15.72 inches (Champaign), 19.04 (DeKalb), and 21.82 (Monmouth). July was the wettest month for Champaign (8.42 inches) and Monmouth (10.81 inches). DeKalb received 9.87 inches of rain in June followed by 6.28 inches in July. Root injury ratings (1 to 6 scale) in the untreated control plots (checks) were 5.82 at Champaign, 3.76 at DeKalb, and 3.71 at Monmouth.

In recent years we have become accustomed to the 0 to 3 node root injury scale, so a brief refresher on what these ratings reflect is probably warranted. The 5.82 root rating in Champaign indicated that nearly 3 nodes of roots were destroyed in the check. In DeKalb and Monmouth, the root injury was less intense in the check plots, with untreated plants averaging almost 1 node of roots pruned. Despite these wet conditions and intense corn rootworm pressure at the Champaign location in 1993, the soil insecticides protected the root systems very well. Each of the following products kept root injury below the suggested economic injury index of 3.0 (several roots pruned within 1.5 inches of the plant, but less than the equivalent of 1 node): Aztec 2.1G (band), Counter 15G (furrow), Force 1.5G (band), Fortress 5G (furrow), and Lorsban 15G (band). At the DeKalb site, these treatments kept root injury below 2.0 (roots with feeding scars) in an experiment in which the check had nearly 1 node of roots (3.76) destroyed. At the Monmouth location, the soil insecticides also kept root injury below the economic injury index (Aztec 2.1G was not tested at this site). These data suggest that the granular soil insecticides continued to provide very good root protection under these very wet soil conditions in 1993. Obviously, we have no similar data set for the transgenic Bt corn rootworm hybrids.

For producers still contemplating replanting those areas of cornfields that have been flooded, it seems doubtful that corn rootworm populations will reach very high densities. In addition, any corn rootworm survivors from ponded areas of cornfields will undoubtedly face starvation by late June if corn roots are not available. This assessment takes into account the late hatch (June 2) that occurred across central Illinois and Indiana.

A note of caution is warranted. The following paragraph is from a Pest Management and Crop Development Bulletin article (No. 13, June 12, 1993) on this topic:

“The timing of precipitation and duration of saturated soil conditions can also significantly affect corn rootworm survival and root damage. Research conducted at the South Dakota laboratory (Northern Grain Insects Research Laboratory) revealed that if the soil was saturated during egg hatch and for roughly two weeks beyond the egg-hatch period, corn rootworm establishment was significantly reduced. Stand-
The Illinois soybean crop was listed as 66% planted as of June 8. Corn was 95% planted, but with 14% of the corn crop rated as poor or very poor, it is likely that some of the planted corn will still need to be replanted, in addition to fields that have not yet been planted the first time.

I previously (May 29) talked about prospects for corn planted in mid-June or later, so I will not dwell on that topic here. One enduring subject, however, has to do with switching hybrid to one with earlier maturity. According to work done by Bob Nielsen at Purdue and Peter Thomison at Ohio State University, late planting diminishes the growing degree day (GDD) requirement for a given corn hybrid, by perhaps as much as 300 GDD if planting is delayed into mid-June. As an observation, this decrease in GDD is related to a decrease in yield typical for late-planted corn—it’s not a “free gift” for planting late.

If we assume that a mid-season hybrid planted on time requires about 2,700 GDD to reach maturity, then planting this hybrid in mid-May might require only 2,400 GDD to reach maturity. According to the maps in the Illinois Agronomy Handbook (chapter 1), corn planted on June 10 has about a 75% chance of accumulating 2,400 GDD before first frost in central Illinois, and an 85% to 95% chance of doing this in southern Illinois. Adding a week to the planting date will diminish these chances, but they might still be reasonably high in the southern third of Illinois. This means that a 111-112–day hybrid may still be okay to plant in that area. Between I-64 and I-70, however, where most fields still to be planted are located, it might be prudent to switch to a hybrid with a relative maturity rating of 105 to 108 days to increase its chances. The tradeoff from using a shorter-season hybrid is that the hybrid will not have been tested as well for the area. This might mean more foliar disease pressure and less ability to tolerate drought stress near pollination.

Another enduring topic, for those who have large ponds in planted fields, is how long seeds or plants can live while submerged. The answer, now that temperatures have returned to normal or above-normal levels: not very long. In almost all cases where water has to drain away through the soil (that is, slowly), seeds or plants will be dead by the time the water dries up enough to provide some oxygen to the seeds or roots. You can often see this
as death of seeds even at the edge of ponds that dry up the earliest. Roots or parts of roots will often die with flooding, due to lack of oxygen and/or pathogens, so even if plants survive they may grow poorly. Loss of nitrogen in low-lying areas may contribute to yield loss, but plant damage by itself is usually severe enough to assure low yields in such areas.

The situation with soybean is becoming more critical, with many acres still to plant and some fields still very wet. We have also heard about emergence problems, and we expect replanting to be necessary in such cases. As I noted earlier, our experience with double-cropping in the most-affected areas of Illinois at least gives an idea of what to expect. We would not replace a soybean variety of normal (Group 4) maturity in southern Illinois with an earlier one, even if planting is delayed past June 25. This is because short-maturing varieties tend to flower for a shorter period, and this can be detrimental when flowering is relatively early, as explained below.

The start of flowering in soybean is related to the crop’s responsiveness to changes in day length, and late planting tends to reduce the importance of this phenomenon. As nights get longer (days get shorter) after the longest day of the year (June 20 in 2008), a biochemical conversion that takes place in a plant hormone during the night turns the hormone into its “active” form, which results in the start of flowering. This process cannot be completed when the night is too short, and it is slower when night temperatures are cool. Warm nights can override the requirement for longer nights, and so move flowering up. Later-maturing varieties need longer nights and hence tend to flower later.

The flowering process also can begin only after soybean plants have reached the V3 stage (with three expanded trifoliolate leaves.) Before that, the plants are too immature to support flowering. This year, most of the planted soybeans are still small, and they will likely reach V3 only in late June, by which time they also will likely be “triggered” to flower if temperatures stay high. Those planted later than June 15 will need about 15 to 20 days of growth to reach V3. In most cases, the start to flowering of the soybean crop will depend on when the plants reach V3, since the trigger related to night length and night temperature will already have been activated.

Soybean plants that start to flower early tend to flower for a relatively shorter time, meaning that they often end up shorter in height than earlier-planted ones. Wet weather in late July or early August can extend the flowering period and allow plants to grow taller, which can help overcome the late and abbreviated start that we are seeing this year. With so much of this year’s crop planted so late, only through continued rainfall are yields likely to be even average.

A note on wheat: The warm temperatures over the past two weeks have brought the wheat crop along very quickly, and the crop is starting to lose its color in many places in southern Illinois. We have been surprised before by how well the crop can fill under similar circumstances, but the very late heading this year means that much of the crop has had less than three weeks of grain filling by now. It is hard to imagine that it can fill grains fully in such a short period, but we’ll hold out hope that kernels will be close to average in size by the time of maturity. Remember that the green heads and stems can help fill grain as well, so grain fill is not complete as long as there is some green color on plants. The June estimate raised the May wheat yield number up by 4 bushels, so we might have some reason for optimism. — 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 South-west 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**

Field activity has been minimal throughout the region in the past 2 weeks or so. Rainfall on June 7 and 8 varied from 1.5 to 2.5 inches across most of the northern area. Soybean planting remains at about 90% completion. Some growers have struggled to complete side-dressing anhydrous ammonia, which has come to a standstill due to wet soil conditions. Some soybeans may need to be replanted after the heavy rains, but to date that has not been determined.

Some alfalfa has been harvested, but there are many acres that have not been cut as growers are waiting for some dry weather.

Just a reminder: The first session of the 2008 Crops Training Center summer sessions will be held on Thursday,
June 26, from 9:00 a.m. to noon at the Northern Illinois Agronomy Research Center, Shabbona. The session will focus on field crop insect issues to date and others that may arise through July in northern Illinois. Presenters will include Dr. Kevin Steffey, University of Illinois Extension specialist, and area extension educators. Pre-registration is requested by June 23 and can be made by contacting Greg Clark, gmclark@uiuc.edu, Whiteside County Extension Unit, 815-772-4075. Cost is $30 per person, and Certified Crop Adviser CEUs have been applied for.

Southern Illinois
With the passing of the June 5 corn-planting deadline for crop insurance, many growers are faced with filing claims for prevented and/or failed planting and with deciding whether to keep existing stands, to replant again, or possibly to switch to another crop if herbicide applications permit. The corn crop condition is highly variable throughout the region, with some fields having excellent stands and others being disastrous. Corn height ranges from just germinating to nearly thigh high, but the latter is definitely a rarity.

Wheat is rapidly turning color as it approaches maturity. Head scab can easily be found in many fields, with incidence levels varying depending on variety, heading date, and whether a fungicide was applied. Other foliar diseases such as rust are also becoming prevalent.

West-Central Illinois
The rainfall totals for the past week were extremely variable. The western and southern portions of the region are extremely wet, with many fields under water. Almost every field shows some effect of being too wet, from yellow corn to ditches being cut across fields. Most streams and rivers are out of their banks.

Corn planting is done in the eastern part of the region; the western side has some corn to plant yet, but that is not likely to happen due to the wet conditions. Corn height ranges from V3 to V7 across the region, and in some cases in the same field. Most corn is growing fast enough with the recent heat to be past the stage of concern about cutworms. However, first-generation European corn borer were caught last week.

Soybean planting is quite variable as well. The eastern part of the region is about 90% done, and the western side is only about 20% to 25% planted. Bean leaf beetles are evident, but so far not at damaging levels.

There is evidence of scab in some of the wheat, and there are starting to be more leaf fungal diseases in flag leaf as well.

Contributing Authors
Mike Gray (megray@uiuc.edu), Extension Entomology, 217-333-6652
Emerson Nafziger (ednaf@uiuc.edu), Crop Sciences, 217-333-4424
Terry Niblack (tniblack@uiuc.edu), Crop Sciences, 217-244-5940
Kevin Steffey (ksteffey@uiuc.edu), Extension Entomology, 217-333-6652