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INSECTS

Follow-Up to “Insects Infesting Soybean? Or Not?”

Somewhat surprisingly to us, our article “Insects Infesting Soybean? Or Not?” in issue no. 18 (July 23, 2004) of the Bulletin generated quite a bit of press. However, I want to point out that we were not alone in our assessment. I direct your attention to an article by John Obermeyer and Larry Bledsoe, entomologists at Purdue University, for the July 9, 2004, issue of Purdue’s Pest & Crop Newsletter, fully 2 weeks before we published our article. Their “Soybean Foliar Insecticides, Perhaps a Big Mistake” can be accessed at http://www.entm.purdue.edu/entomology/ext/targets/p&c/P&C2004/P&C17_2004.pdf. Their cautions were as stern as ours. The bottom line is that when IPM principles are ignored by marketing campaigns, some of us will notice and react. Producers should not be persuaded entirely by promises of yield benefits when the targets of insecticides are not present.—Kevin Steffey

The Slow Creep of Soybean Aphids

Although it never seems as exciting to write about insect problems that are not happening, the non-occurrence of an insect outbreak should be greeted with cheers, especially after the tough time we had with soybean aphids in 2003. Reports throughout the Midwest continue to confirm that densities of soybean aphids are for the most part far below threshold levels and will require no insecticide applications. However, we still have the rest of August to keep up the scrutiny.

This having been said, it is important to point out that many soybean fields are maturing rapidly past the growth stages of most concern. In its report for the week ending August 1, the Illinois Department of Agriculture indicated that “pods were setting on 64 percent of the soybeans, still well ahead of last year’s 30 percent and 51 percent five-year average.” As we have indicated previously, yield losses caused by soybean aphids are most likely when pest densities reach economic levels between reproductive stages R1 (beginning bloom) and R4 (full pod). For the most part, entomologists still are not certain whether soybean aphids cause much yield loss if infestations occur during the R5 (beginning seed) and R6 (full seed) stages, although all of us agree that the threat to yield during these stages is considerably reduced.

Drs. David Onstad (University of Illinois Department of Natural Resources and Environmental Sciences) and David Voegtlin (Illinois Natural History Survey) continued surveying soybean fields for soybean aphids in selected townships in Champaign, Kendall, Tazewell, and Woodford counties during the week of August 2. They found soybean aphids in every field they surveyed, but the densities were very low. For example, they found a range of 4 to 200 soybean aphids per 50 plants (0.08 to 4 aphids per plant) in fields in Champaign County. They observed 102 aphids on one plant in one of the fields in Champaign County, the largest number they have counted on one plant this summer. One of the fields they surveyed in Tazewell County was 100% infested, with 70 aphids per plant as the highest number they observed in that field. The soybeans were in stages R5 and R6.

“Hot spots” within fields also continue to show up. Matt Montgomery, Extension educator in Menard and Sangamon counties, “stumbled across’ some
3-foot-diameter hot spots in a soybean field near Greenview. The densities of aphids in these hot spots were well above threshold. Matt also observed aphid mummies, evidence that parasitoids were at work in the field. The globular, copper-colored mummies are the remains of aphids whose insides have been consumed by a parasitoid larva. Often, a hole from which the adult parasitoid emerged can be observed.

We applaud your vigilance with this aggravating pest this year. As we have said, we usually don’t receive quite as much scouting information about any other pest of corn and soybean in Illinois, with the exception of corn rootworms, of course. As many of you have learned, continuous focus on the soybean aphid is building a foundation for understanding its population dynamics. After all is said and done for 2004, we will likely begin looking toward 2005. It will be interesting to learn what the suction trap network reveals this fall.—Kevin Steffey

Controlling Rootworm Adults in Soybean Fields

In what has become a frustrating refrain, we have learned that some people continue to recommend spraying insecticides to kill rootworm adults in soybean fields, with some hope that reduced numbers of adults in soybeans in 2004 will result in less larval damage in 2005. Unfortunately, more often than not, a rootworm-control product will be used when corn is planted in 2005. We have addressed the potential significant side effects of this strategy so many times that it has become boring, both for us and for you. However, we must state again that exposing adult corn rootworms to insecticides in late summer one year and then exposing corn rootworm larvae to insecticides again in the spring the following year is a recipe for trouble.

One of the most common questions we received during 2003–2004 winter meetings was “If I sprayed an insecticide to control soybean aphids in August [2003], did I kill enough rootworm adults that I won’t need a rootworm-control product in 2004?” The most honest answer to this question is “I don’t know.” Undoubtedly, all of the insecticides applied to control soybean aphids in 2003 killed rootworm adults, too. However, given the limited residual effectiveness of most insecticides and the western corn rootworm’s behavior of flying back and forth from corn to soybean to corn, timing an insecticide application to prevent significant egg laying in soybean fields would be difficult. We are aware that some cornfields in east-central Illinois that have been severely damaged by rootworm larvae this year were soybean fields treated for soybean aphids last year. I am certain that the converse is also true (fields of soybean treated for soybean aphids in 2003 with little or no rootworm larval damage in 2004). However, we do not have a database substantial enough to let us draw any reliable conclusions.

Neither a scouting procedure nor a threshold for controlling rootworm adults in soybean to prevent significant egg laying has been developed. Until these two crucial aspects of a rootworm adult control program have been worked out, we discourage the application of insecticides to control western corn rootworm adults in soybean. —Kevin Steffey and Mike Gray

Second-Generation Corn Borer Flight Beginning

After a noticeable absence in many areas this year, the European corn borer moth appears to be present again. I noticed quite a few swarming around my porch light a few evenings ago. Reports of moth-splattered windshields have also made it to my desk this week. Light traps are seeing more activity; the Champaign light trap jumped from nearly 0 corn borers each night to almost 60 at the end of July. Increasing numbers of moths indicate the need to scout fields for egg masses. For those monitoring light traps for second-generation corn borer, feel free to submit counts to the Insect Monitoring Network—contact me, Kelly, at (217)333-4424 or kcook8@uiuc.edu.

Second-generation moths are attracted to pollinating cornfields that have fresh silks. However, they will lay egg masses in any cornfield or other hosts if pollinating cornfields are unavailable. Late-planted corn still in the whorl stages also attracts these moths, but don’t forget to scout any early-planted or early-maturing varieties. Potential yield loss from second-generation corn borer is generally less than that from the first generation but depends on the time of infestation. If infestation occurs during pollen shed or when kernels are initiated, the percentage of loss per borer per plant is 4% or 3%, respectively.

Second-generation corn borers feed on pollen in leaf axils or on corn leaves. As they mature, they feed on leaf sheaths, collars, and midribs until they eventually enter the plant. Larvae may also enter the ear or earshank. Yield losses can be attributed to physiological damage; stalk breakage; and lodging, ear dropping, and secondary invasion of stalk rots.

Scouting for second-generation corn borer can be frustrating and challenging. Since the second generation is associated with an extended moth flight, the flight may last a couple of weeks. It is entirely possible to find multiple stages of corn borer on a single plant. Furthermore, scouting for egg masses is not exactly fun (there’s no need to sugarcoat it). Egg masses are laid on the undersides of leaves near the midribs. They are usually concentrated on leaves in the ear zone (the ear leaf and the three ears above and below it). Moths can lay eggs anywhere on the plant, but if eggs are concentrated in that area, scouting time can be reduced by focusing on the ear zone.

Management decisions can best be made with the use of the second-generation corn borer management worksheet (at right). The worksheet offers some average numbers based on research data over many years and from multiple states. However, these are just
Management Worksheet for Second-Generation European Corn Borer

... Egg masses found\(^1\) + 0.91 (If only ear zone sampled) = _____ Adjusted egg masses

_____ Adjusted egg masses + _____ Plants examined = _____ Egg masses per plant

_____ Egg masses per plant X 4 Larvae per egg mass\(^2\) = _____ Larvae per plant

_____ Larvae per plant X _____ Yield loss per larvae\(^3,4\) = _____ Yield loss

_____ Yield loss X _____ Expected yield (bu/A) = _____ Loss (bu/A)

_____ Loss (bu/A) - $_____ Price per bushel = $_____ Loss per acre

$_____ Loss per acre x 0.75 Control = $_____ Preventable loss per acre

$_____ Preventable loss per acre - $_____ Cost of control per acre = $_____ Gain (+) or loss (-) per acre if control applied

Notes:
1 Counts may be cumulative if taken a few days apart.
2 Four larvae per egg mass assumes 20% survival of 20 eggs per mass; increase if conditions are favorable to corn borer survival.
3 Record all percentages as decimals (for example, 20% = 0.20).
4 Yield loss per borer per plant at two corn stages:

<table>
<thead>
<tr>
<th>Average number of egg masses</th>
<th>Pollen shed</th>
<th>Blister stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two or fewer per plant</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>More than two per plant</td>
<td>0.03</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Table 1. Insecticides labeled for control of second generation European corn borer.

<table>
<thead>
<tr>
<th>Product</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambush</td>
<td>6.4 to 12.8 oz</td>
</tr>
<tr>
<td>Baythroid 2</td>
<td>1.6 to 2.8 oz</td>
</tr>
<tr>
<td>Capture 2EC</td>
<td>2.1 to 6.4 oz</td>
</tr>
<tr>
<td>Disciple 2EC</td>
<td>2.1 to 64 oz</td>
</tr>
<tr>
<td>Intrepid 4F</td>
<td>4 to 8 oz</td>
</tr>
<tr>
<td>Lorsban 4E</td>
<td>1-1/2 to 2 pt</td>
</tr>
<tr>
<td>Lorsban 15G</td>
<td>6.5 lb</td>
</tr>
<tr>
<td>Mustang Max</td>
<td>2.72 to 4 oz</td>
</tr>
<tr>
<td>Penncap-M</td>
<td>2 to 4 pt</td>
</tr>
<tr>
<td>Pounce 1.5G</td>
<td>6.7 to 13.3 lb</td>
</tr>
<tr>
<td>Pounce 3.2EC</td>
<td>4 to 8 oz</td>
</tr>
<tr>
<td>Tracer 4SC</td>
<td>1 to 3 oz</td>
</tr>
<tr>
<td>Warrior</td>
<td>2.56 to 3.84</td>
</tr>
</tbody>
</table>

24(c) Special Local Needs Label for Mustang Max

The Illinois Department of Agriculture recently approved a 24(c) Special Local Needs label for Mustang Max to control corn earworm and European corn borer in field corn and seed corn. The recommended application rates for this purpose are 2.72 to 4.0 oz per acre. The 24(c) label reduces the pre-harvest interval from 30 days to 7 days for grain and stover. The interval for forage is 60 days. Approval of FMC's application for this 24(c) label came as a result of requests from the seed corn industry. The former 30-day interval did not allow companies to control late-season infestations of corn earworm and European corn borer, which feed on developing corn kernels.

Anyone who uses Mustang Max as directed by this 24(c) supplemental label must possess a copy of the supplemental label at the time of use.

You can obtain these labels from your pesticide dealer or directly from the pesticide manufacturer. Remember that these labels specifically state where, how, and for how long the product may be used.—Kelly Cook

Regional Reports

Northern Illinois

We have received very few reports of crop pests over the last week throughout the region. Soybean aphid num-
bers per field continue to be few to nonexistent. The corn crop has benefited from the mostly moderate temperatures experienced from pollination through August 1, with only a few scattered stressful temperature days. An exception is cornfields on some lighter soils; they were beginning to show moisture stress, but the region received widespread precipitation on August 3.

The workshop “Diseases, Invasive Species, and Crop Management Issues” will be held on August 25 beginning at 8:30 a.m. at the U of I Northern Illinois Agronomy Research Center, Shabbona. Reservations are due by August 16 to Dave Feltes, Quad Cities Extension Center, (309)792-2500. For more details, refer to last week’s issue of the Bulletin (issue no. 19, July 30, 2004).

Southern Illinois
Almost all corn is in the dough or early dent stage (R4 to R5). Overall, it is in excellent condition, though gray leaf spot can be easily found on susceptible hybrids. Rainfall has been adequate across the region, and sunny days with warm temperatures bode well for high-yield potential.

Soybean also looks excellent, with only scattered reports of sudden death syndrome to date. Many fields are showing the presence of late flushes of waterhemp and giant ragweed where sequential applications of herbicide were not made.

Now is an excellent time to apply nitrogen to tall fescue pastures in order to stockpile forage for deferred grazing later on in the winter.

West-Central Illinois
The main interest continues to be the variant “first-year” western corn rootworm. Yellow sticky traps have been distributed in various parts of the region. The numbers of beetles captured on sticky traps, especially in the areas that previously “bordered the variant problem,” appear to be impressive as we begin the trapping period. The intensity of captures in some areas has led individuals to again explore the use of insecticide in beans in an effort to reduce next year’s rootworm pressure. While the apprehension is understandable, we continue to discourage this practice, noting mobility of the variant and concern for the environment. How far west has the variant western corn rootworm problem now reached? U of I educators have been collecting roots from first-year cornfields throughout the west-central region in an effort to answer that question.

Sudden death syndrome continues to be the topic of soybean field discussions. Symptomology in some fields has already shifted from chlorotic to necrotic lesions. The southern portion of our region appears to have developed the most extensive symptoms to date, with substantial yield penalties expected in the most “progressed” SDS fields. We continue to note later-season root rots. Potato leafhoppers continue to be sprayed in various areas, having developed exceptional populations in some newly cut alfalfa fields.

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