



PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

FOR IMMEDIATE RELEASE
No. 16 / July 13, 2001

Executive editor: Kevin Steffey,
Extension Entomologist

Available on the Web at
<http://www.ag.uiuc.edu/cespubs/pest/>
For subscription information, phone
217.244.5166, or e-mail
acesnews@uiuc.edu

Copyright © 2001, Board of Trustees,
University of Illinois

In This Issue

- ❑ **The Watch for Soybean Aphids Continues, 181**
- ❑ **Reports of Extensive Corn Rootworm Larval Injury Common, 182**
- ❑ **Flights for Second Generations of Corn Borers Are Under Way, 183**
- ❑ **More Aphids, but on Another Crop—Corn, 184**
- ❑ **Are We Looking at the Crops Right? 184**
- ❑ **Regional Reports, 185**

INSECTS

The Watch for Soybean Aphids Continues

Although we have received only one report of the occurrence of soybean aphids in Illinois (McHenry and Boone counties) from someone not associated with our survey efforts, the numbers of this pest continue to increase in some fields. For example, in a field in Kendall County that our survey team visits weekly, the surveyors found about 10,000 aphids per 50 plants (about 200 aphids per plant) during the week of July 9, a significant increase from the numbers they recorded from the same field during the week of July 2. On the other hand, numbers of aphids in some fields have decreased, possibly as a result of the heavy rains that fell in some areas of the state recently. As you may recall, heavy rains in northern Illinois last year began the demise of soybean aphid populations in mid-August. Then the cleanup crew of predators (multicolored Asian lady beetles, green lacewings, syrphid fly larvae) did the rest.

On the “new sightings” front, we have received word from entomologists in other states that the soybean aphid (pending confirmation of species) has been found in Indiana, Ohio, and New York, and entomologists in Pennsylvania are searching. In most instances, the numbers of aphids found were quite low, although almost every state has a report of at least one field with more than 100 aphids per plant. In Illinois, we can add Sangamon County to a slowly growing list of counties in which we have found soybean aphids. David Voegtlin, aphid specialist with the Illinois Natural History Survey, found a moderate number of aphids during a casual search of a soybean field just at the edge of Springfield. David Onstad, Department of Natural Resources and Environmental Sciences, has sent a team to resurvey some areas of north-central and northwestern Illinois. The discovery of the aphid in Sangamon County probably will persuade us to boost our survey efforts in more south-central counties.

Because of what happened last year (people being caught unaware by a “soybean aphid explosion”), trigger fingers are itchy and some people want to treat early to avoid the buildups that occurred last year. Most entomologists strongly agree that we would do more harm than good by treating early. One study conducted in China revealed that early infestations by small numbers of aphids could result in some yield loss; however, that study, cited by some scientists, was based on an even, manual infestation of small plants. In reality, uniform infestations in most production fields are not common. Usually we find a plant here and there that harbors a relatively large number of aphids, but the other plants are infested by very few aphids.

Waiting creates some anxiety, but we really believe that waiting is the best policy right now. We could really disrupt the natural scheme of things by spraying an insecticide too early. In some areas of Illinois, hot and dry conditions are encouraging buildups of twospotted spider mites. An early insecticide spray right now might kill soybean aphids, but it also will kill important predators and parasitoids. Without these natural enemies, populations of soybean aphids and twospotted spider mites could resurge strongly without

any “good guys” to stop them. And keep in mind that most pyrethroids, if that is your chosen class of insecticide, are notoriously not very effective against spider mites. So we urge a watchful eye and patience. Let’s give natural control (whether by natural enemies or environmental circumstances) a chance.—Kevin Steffey, Mike Gray, and Sue Ratcliffe

Reports of Extensive Corn Rootworm Larval Injury Common

Reports of corn rootworm larval injury are becoming increasingly common. On July 6, David Feltes, IPM educator, Quad Cities Extension Center, reported that a first-year cornfield in northern LaSalle County had plants with severe pruning and live larvae still present. Gary Bretthauer, IPM educator, Kendall County Extension Unit, reported on July 11 that several first-year cornfields in Kendall County had significant levels of corn rootworm larval injury. Reports such as these continue to indicate that the first-year corn western corn rootworm problem has become firmly established outside of east-central Illinois counties.

As we approach mid-July, much of the corn rootworm larval injury will have occurred already. Some lingering feeding will continue through July; however, I don’t anticipate much injury in late July because of the early hatch that occurred this spring. On July 16, we will begin to evaluate our Urbana experimental plots for corn rootworm larval injury. John Shaw, an entomologist with the Illinois Natural History Survey, will lead this effort. Following our evaluations, we will report the root-rating results in upcoming issues of the *Bulletin*.

For those of you who are interested in evaluating the performance of your chosen soil insecticide, there’s no easy way to accomplish this task. Relying exclusively on the intensity of lodging and yield may not offer an accurate assessment of the return on your in-

vestment of a soil insecticide purchase. Plants may lodge because of poorly rooted plants in fields suffering from compaction problems. Storms accompanied by high winds also may lead to lodged plants. In some years, yields may not reflect the level of rootworm injury. Hybrids differ considerably in their ability to compensate for rootworm larval injury. This is especially notable in wet growing seasons. The only way to accurately assess soil insecticide performance is to rate roots for larval injury. Compar-

ing roots from treated and untreated strips within a field is essential. Unfortunately, many producers will not leave even a single check strip. Because corn rootworms do not occur at economic levels in every cornfield, some producers mistakenly assume that their soil insecticide performed exceptionally well when, in fact, very few corn rootworm larvae may have been present. We estimate that approximately 50% of cornfields support economic infestations of corn rootworm larvae.

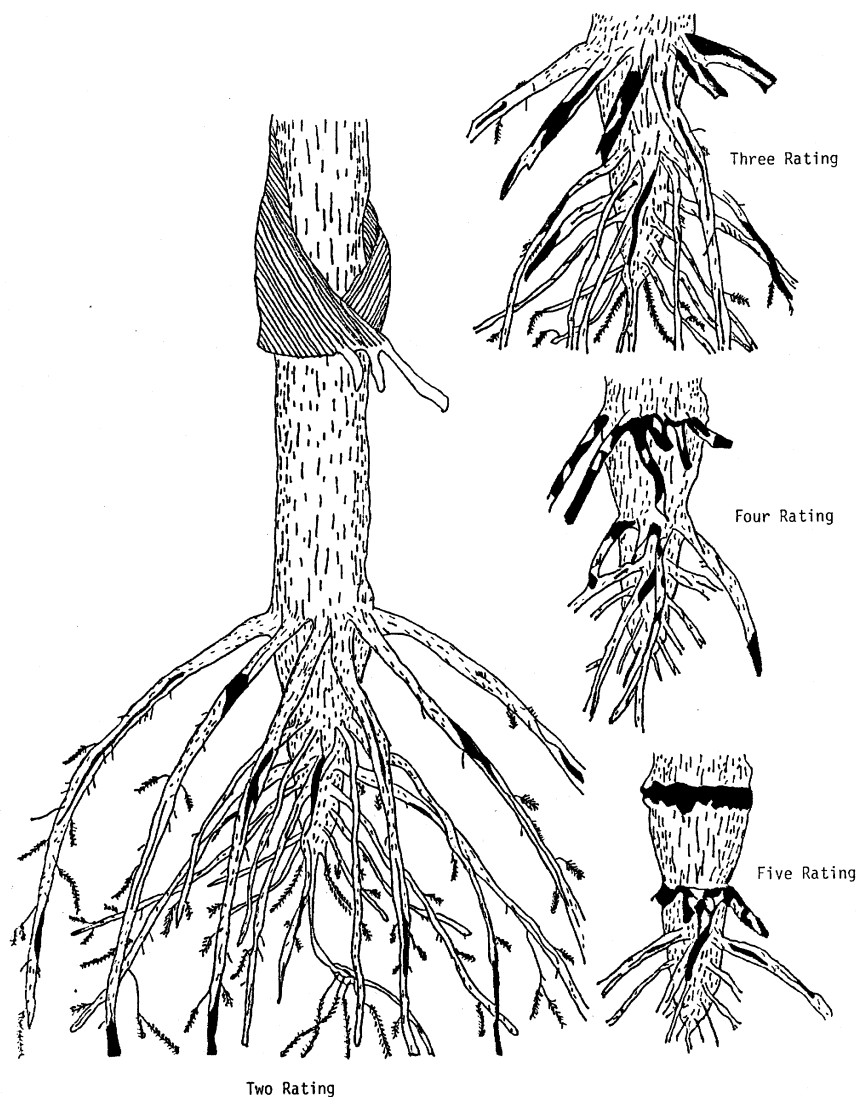


Figure 1. Schematic illustrations of root ratings 2, 3, 4, and 5 from the Iowa State University 1–6 rating scale for rootworm larval injury.

To evaluate your soil insecticide, please consider the use of the “old” Iowa State University 1–6 root-rating scale. After you remove roots from a selected field, wash the soil from the root system and rate each individual root for scarring and pruning. It’s a good idea to remove roots from several areas within a field. Obviously the more roots you examine the more reliable your estimate of overall injury is likely to be. An explanation of the rating scale follows, and schematic illustrations of root ratings 2, 3, 4, and 5 are provided in Figure 1. In addition, we encourage you to view our instructional video on this rating process at the following Web site: http://www.ipm.uiuc.edu/publications/videos/corn_rootworm/root_rating.html.

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

- 1—No visible damage or only a few minor feeding scars.
- 2—Some plants 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.

We are interested in your reports of corn rootworm larval injury throughout the state. If you find significant injury in scouted fields, don’t panic. Although rescue treatments are not an option, many hybrids will compensate as long as soil moisture levels are adequate. Let us know what you find.—*Mike Gray*

Flights for Second Generations of Corn Borers Are Under Way

Gary Bretthauer, unit educator, Kendall County Extension, reported shot-hole damage to 30% of the corn plants in a field scouted this week. Each damaged plant had at least one larva, some still on the leaves, but most in the stalks. Gary has received similar reports from producers in the area. Ron Hines, research agronomist at the University of Illinois Dixon Springs Ag Center and an ever-vigilant observer of corn borer activity, has reported the beginning of captures of European and southwestern corn borer adults in his traps in Massac and Pulaski counties. The numbers of European corn borer adults Ron has captured were low as of July 10. However, he reported 75 southwestern corn borer adults in one type of trap on July 10 in Massac County. Randy McElroy reported low numbers of ECB egg masses in fields in Hamilton county.

The flight of the moths that will lay eggs for the second generation of southwestern corn borers this year seems to be a bit ahead of schedule. As the next few weeks unfold, we will be better prepared to determine the potential for infestations of the second generation of both of these pests. So keep tabs on the moth flights, and be prepared to scout and treat if necessary. Knowing what egg masses and larvae look like will aid your scouting efforts.

Southwestern corn borer female moths may oviposit eggs singly or in small clutches of up to five eggs on either the upper or lower surface of a corn leaf. Females lay most of their eggs in the ear zone. The eggs are oval, flattened, and cream colored when first deposited. When eggs are laid in masses, they overlap like fish scales, similar to the eggs of European corn borers. Within 48 hours after they are laid, three pink to red transverse bars become visible on southwestern corn borer eggs. Southwestern corn borer

larvae have indistinct bands across their bodies, from which very fine hairs (setae) project. Tubercles (small bumps) become very apparent on fourth and fifth instars.

Small larvae of the second generation usually can be found between or under the husk layers of the primary or secondary ears, on ear shoots, and behind leaf sheaths. When larvae reach the third instar, they bore into the stalk and begin tunneling. They also may tunnel inside ear shanks, and occasionally they can be found feeding on kernels in the ear.

Scouting for the second generation of southwestern corn borers should intensify for at least 2 weeks after pollination is complete and should continue throughout July. Look for egg masses and larvae on the leaves or behind leaf sheaths. A rescue treatment may be justified when 20% to 25% of the plants are infested with eggs or newly hatched larvae behind leaf sheaths. If the percentage of plants infested is not enough to justify treatment, scout again in 3 to 5 days, then consider treatment if the sum of the two counts is more than 25%. These simple guidelines are suggested only as starting points. Low commodity prices and the cost of the insecticide rescue treatment must be factored into the decision-making process. After larvae tunnel into stalk tissue, rescue treatments are not a control option.

Insecticides that are labeled for use against the second generation of southwestern corn borer include *Ambush (6.4 to 12.8 oz of product per acre), *Asana XL (5.8 to 9.6 oz of product per acre), *Capture 2EC (2.1 to 6.4 oz of product per acre), Lorsban 4E (2 to 3 pt of product per acre), *Pounce 3.2EC (4 to 8 oz of product per acre), and *Warrior T or 1E (2.56 to 3.84 oz of product per acre). Use of products preceded by an asterisk is restricted to certified applicators.—*Susan Ratcliffe, Kevin Steffey, and Mike Gray*

More Aphids, but on Another Crop—Corn

On July 6, John Coers with Royster Clark reported a fairly heavy infestation of corn leaf aphids in a cornfield in Mason County. Although the field was only partially tasseled out, many of the tassels were heavily infested with the blue-green aphids that typically pose a threat to corn yields only when moisture is lacking. Well, you know that story.

With all the focus on soybean aphids in soybeans right now, it's easy to forget that the corn leaf aphid has been with us for years and can cause some significant injury during the late whorl and pollinating stages of growth. When environmental conditions are very hot and dry, corn leaf aphids can cause significant yield losses even after pollination is completed. I remember way back to 1980 (yes, some of my memory is still intact) when we had a huge outbreak of corn leaf aphids in central and east-central Illinois. Don Kuhlman (retired extension entomologist) visited some cornfields in which the tops of the plants had been killed outright. Numbers of aphids in these fields were extremely large (aphids covering every square inch of plant from the tassel to the ear), and the lack of soil moisture was critical.

During the critical stage of pollination and shortly thereafter, monitor for corn leaf aphids in cornfields, especially in areas that are short on moisture. Adult corn leaf aphids (winged and wingless) are about 1/16 inch in length and are dark blue-green. The cornicles, bases of cornicles, and legs are black. As the aphids age, the adults become almost completely dark green to black. You will find corn leaf aphids in different-sized colonies that started in the whorls and continue to increase in numbers on the upper parts of the corn plants, if environmental conditions are favorable for the aphids. If corn plants have adequate moisture, corn leaf aphids cause little injury. However, feeding by aphids during

drought conditions exaggerates symptoms of drought stress. Symptoms of the aphids' feeding include yellowing or reddening of whorl leaves; sticky, gummed-up leaves and tassels (the consequence of honeydew excreted by aphids); tassels with dead sections; and barrenness or poor grain fill.

Like other species of aphids, corn leaf aphids have tremendous reproductive potential—they can complete 40 to 50 generations per year. So watch for the buildup of aphids in corn wherever a lack of moisture prevails. During the early tassel stage, if 50% of the plants have light-to-moderate infestations (50 to 400 aphids per plant) and plants are under drought stress, treatment may be warranted. After pollination, continue to watch the colonies of aphids to determine if their numbers are increasing or decreasing. And always look for beneficial insects, such as lady beetles, that can suppress aphid populations.

If an insecticide treatment seems justified, consider *Capture 2EC at 2.1 to 6.4 oz per acre, dimethoate (see product label for rate of application), *Lorsban 4E at 1 to 2 pt per acre, or *PennCap-M at 2 to 3 pt per acre. Products preceded with an asterisk are restricted for use by certified applicators.—Kevin Steffey

CROP DEVELOPMENT

Are We Looking at the Crops Right?

As most cornfields move into (and through) the pollination process, the questions continue about the "real" state of the crop. We notice that the percentage of the crop ranked as "good" or "excellent" is lower than it was last year at this time, and modest price rallies in the past 2 weeks suggest that many people have the expectation that this year's crop isn't quite "up to snuff." What's the real story?

The crop in 2001 went in about as early as the 2000 crop, and temperatures this year have generally been higher than they were a year ago.

Rainfall in June was very plentiful last year, but in many areas this year, there were at least short periods during June when the crop showed some symptoms of lack of water. By the end of June, the crop in 2000 looked fantastic, while this year the crop looked better than average but not as uniformly good as last year's. Still, most fields entered or are entering the pollination period without too many noticeable problems, at least in most of the state. As we noted 2 weeks ago, June weather was more conducive to root growth than the wet weather of last year. But in areas where there was dryness, the crop is not quite as tall as last year, and the color in most fields is not the deep green it was a year ago. The biggest difference is temperature: Last year, it was August before we hit 90°F, while this year it has been above 90 a number of times since early May. It is probably the lower night temperatures that provide the real advantage from low temperatures. Lower night temperatures tend to limit respiration and to thereby keep more of the plant sugars available for growth and development. If we had a good way to measure the "sugar status" of the crop, last year's corn crop would have this year's beat.

Is the lower rating of crop condition likely to mean much at the end of the season? For the reasons mentioned above, we probably can't expect kernel number and size to be as high this year as they were last year. On the other hand, the lack of rainfall after early July, leaf diseases, and what was likely a marginal root system combined to reduce yields and stalk quality last year. In general, crop ratings last year stayed high in August, longer than the actual crop condition probably justified, though the remarkable conditions through pollination still produced high yields statewide, and in southern Illinois where rainfall was better, the yields were outstanding. This year, we haven't had many leaf diseases, and the root system may be better; but we also have a crop that has encountered more stress up to now, and in areas missed by recent storms,

that stress is worsening. How this will play out is almost entirely dependent on rainfall during the next 6 weeks. Cooler-than-normal August temperatures would also be very useful, but if the dry weather continues or if August is normal or above normal in temperature, it is likely that we will not have either average or top-end yields as high as we saw in 2000 and in 1994.

The story in soybeans is different from that in corn. In general, the lack of excessive rainfall in most areas during the past month has resulted in less drowning in the low spots than we've had some years. Stands tend to be fairly good, and crop color is probably about average. But as I noted recently, soybeans at this stage are about as easy to "call" as knee-high or waist-high corn; we can see if there are serious problems in stands or crop health, but the conditions that will produce yield are still in the future. Weather conditions that will be conducive to high corn yields will be favorable for soybeans as well, but to turn a good crop into an excellent one, the conditions for soybeans usually need to last about 2 weeks longer than for corn. For both crops, how many of the next 50 to 60 days the crop will be able to maintain maximum photosynthetic rates will largely determine the yield we harvest this fall.—*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.

East-Central Illinois

Things are fairly quiet except for Japanese Beetle concerns. The corn is pollinating, beans are flowering, and in areas that received some rain a new flush of weeds is growing. Farmers are getting ready for the western corn rootworm trapping season.

Northern Illinois

Few cornfields north of Interstate 80 have tasseled; however, many will have reached that stage by next week. Even though some areas received rainfall last week, a large portion of northern Illinois is short of topsoil moisture. Wheat harvest is just beginning in most areas. Second harvest of hay is occurring across the area.

Potassium deficiency symptoms have been observed frequently in corn but are usually limited to field borders or compacted areas.

As far as an insect update, several educators report observing increasing populations of Japanese beetles during the past few weeks in soybeans and noncrop areas. Little damage has been observed in soybeans; however, concern has been expressed whether Japanese beetles will migrate to fresh corn

silks over the next few weeks. Producers are encouraged to monitor cornfields for silk clipping by Japanese beetles and, of course, by corn rootworm beetles. Gary Bretthauer, Kendall County Extension educator, reported several lodged first-year cornfields. The damage may be from rootworm larvae. However, this has not been confirmed at press time.

Southern Illinois

High temperatures and wide-ranging rainfall amounts have resulted in variable conditions across the south. Everything from too dry to too wet exists, with a little ideal soil moisture.

Early corn is late R3 and may be dough by next week. Soybeans continue to bloom and pod. Most crops appear to have good plant health and nutrition.

Scattered insect pest problems continue, but there are no widespread situations. Southwestern corn borer moth second flight is currently being monitored.

West-Central Illinois

Typical summer weather has arrived in the region. Warm and dry conditions exist in most of the areas; however, some scattered showers have been reported.

Most cornfields have tasseled and pollinated; yield potential looks good at this time. Some leaf-disease symptoms are starting to appear. Corn leaf aphids can be found in some fields. No other insect problems have been observed.

Most soybean fields are in the reproductive stages. Leaf cupping is evident in some fields. Portions of some fields have been treated for spider mites. There is concern about herbicide-resistant waterhemp.

Double-crop soybeans have emerged well but need rain for better growth.

Grasshoppers can be found in ditches and other grassy areas.

U of I Extension Newsletter Service
University of Illinois
at Urbana-Champaign
528 Bevier Hall, MC-184
905 S. Goodwin Avenue
Urbana, IL 61801

Return Service Requested

Contributing Authors

Mike Gray (m-gray4@uiuc.edu),
Extension Entomology, (217)333-
6652

Emerson Nafziger (ednaf@uiuc.edu),
Crop Sciences, (217)333-4424

Susan Ratcliffe (sratclif@uiuc.edu),
Extension Entomology, (217)333-
6652

Kevin Steffey (ksteffey@uiuc.edu),
Extension Entomology, (217)333-
6652

*The Pest Management & Crop
Development Bulletin* is brought to you
by University of Illinois Extension and Information
Technology and Communication Services,
College of Agricultural, Consumer
and Environmental Sciences,
University of Illinois at Urbana-Champaign.
This newsletter is edited by Erin Cler
and formatted by Oneda VanDyke,
ACES/ITCS.

Copyright © 2001, Board of Trustees,
University of Illinois



UNIVERSITY OF ILLINOIS
EXTENSION

Helping You Put Knowledge to Work

University of Illinois
U.S. Department of Agriculture
Local Extension Councils Cooperating

University of Illinois Extension provides equal
opportunities in programs and employment.