

# PEST MANAGEMENT & CROP DEVELOPMENT

## BULLETIN

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### In This Issue

- Come Take Part in Agronomy Day! 195
- Prepare for Soybean Pod Feeders, 195
- Update on European Corn Borers, 197
- Yellowstriped Armyworms, Anyone? 197
- Section 18 for Tilt, 198



Next issue: August 28

## UPCOMING

### Come Take Part in Agronomy Day!

Don't forget about the 42<sup>nd</sup> consecutive Agronomy Day, scheduled for August 27. The program will be held at the Crop Sciences Research and Education Center (South Farms) on the University of Illinois campus. The theme for this year's event is "Agricultural Information: Seeds for Success." Participants will be able to select those presentations of most interest to them. Four separate tours are planned and include the following topics: Tour A—Seeds for Your Needs, Sclerotinia Stem Rot of Soybeans, Corn Rootworms, Planting Depth in Corn, To *Bt* or Not to *Bt*?; Tour B—Fall Strip Till and Cross-Slot Planters, Wheat Scab, Expanding Our Soybean Family Tree, Soybean Cyst Nematode, Do Soybeans Need Nitrogen?; Tour C—Herbicide Resistant Weeds, Weed/Crop Competition, Controlling Problem Weeds, Herbicide Carryover, Smart Sprayer; and Tour D—Soil Compaction, Controlling Feedlot Runoff, Automatic Guidance, A Neural Network to Predict Yield, and Reducing Spray Drift.

In addition to the tours, many displays will be featured beneath the "big top." Tent displays will include AgrAbility and General Farm Safety, Global Soy Forum 99, Off-Campus Graduate Studies in Crop Sciences, Using Benchmarks to Analyze the Financial and Production Efficiency of Your Farm Business, Soybean Cyst Nematode, Crop Sciences Extension on the Internet, Isolation of Chemoprotective Chemicals from Soybean Processing By-Products, the Illinois Society of Professional Farm Managers and Rural Appraisers, Plant Clinic, Pesticide Safety Education in Illinois, Solar Power for Remote Locations, and the Illinois Council on Food and Agricultural Research.

As you can see, we have a diverse program available for you. Plan to join us for coffee bright and early at 7 a.m. After the tours have concluded, a lunch will be served. See you on August 27<sup>th</sup>!

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## INSECTS

### Prepare for Soybean Pod Feeders

In last week's *Bulletin* (no. 20, August 7), Kevin Steffey focused on soybean defoliation. As we move into the latter half of August and into early September, our attention turns toward soybean pod feeders. Bean leaf beetles, grasshoppers, and stink bugs are all capable of inflicting yield losses to soybeans during the pod-fill stage of development.

Holes small and rounded; mostly within the interveinal areas of the leaf



Pods with numerous scars on pericarp; injury seldom extended into seed chambers

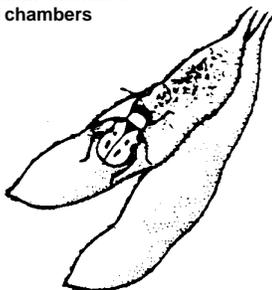


Figure 1. Bean leaf beetle defoliation and pod injury.

The last generation of bean leaf beetles will begin to feed on soybean pods after the leaves become too old (begin to lose some green coloration). The beetles scrape off the green tissue on the pods (Figure 1) but do not chew through the pod wall. The resulting scars on the pods provide an opening for entry of spores of various fungal diseases that are normally blocked by the pericarp. Mild infection results in seed staining; severe infection may result in total seed contamination.

Grasshoppers cause more direct injury to the soybean seeds. Because they have strong chewing mouthparts, grasshoppers often chew directly (Figure 2) through the pod wall and take bites out of or devour entire seeds. If more than 5 to 10 percent of the pods are injured by grasshoppers or bean leaf beetles, an insecticide application may be warranted.

Most individuals tend to overlook stink bugs and the potential injury they can cause, even though they may

Seed destroyed by insects feeding externally



Figure 2. Grasshopper injury to soybean pods.

be the most important pod feeders in the state. Watching for stink bugs, especially in the southern half of the state, should be a high priority for soybean producers.

Green stink bugs are believed to migrate northward from overwintering sites (wooded areas under leaf litter) as adults. During the early months of summer, the adults feed on berries in trees, especially dogwoods. Stink bugs are first found in soybean fields during August. They undergo incomplete metamorphosis (immature bugs resemble the adults), which requires roughly 45 days from egg hatch to adult emergence (Figure 3). There is usually only one generation of green stink bugs per year in Illinois.

Immature stink bugs (nymphs) have a flashy display of black, green, and

yellow or red colors and short, stubby, nonfunctional wing pads. The adults are large (about 5/8-inch long), light green, shield-shaped bugs with fully developed wings. Both adults and nymphs have piercing and sucking mouthparts for removing plant fluids.

Stink bugs feed directly on pods and seeds; however, their injury is difficult to assess because their mouthparts leave no obvious feeding scars. Stink bugs use their mouthparts to penetrate pods and puncture the developing seeds (Figure 4). They inject digestive enzymes into seeds, and the feeding wound provides an avenue for diseases to gain entry into the pod. Seed quality is also reduced by stink bug feeding, and beans are more likely to deteriorate in storage.

Other species of stink bugs also occur in soybeans. The brown stink bug has feeding habits and a biology similar to those of the green stink bug. The brown stink bug should not be confused with the beneficial spined soldier bug. These two species can be distinguished from each other if you look at the feeding beak and underside of the abdomen. The beak of the brown stink bug is slender and embedded between the lateral parts of the head. The base of the beak of the spined soldier bug is stout and free

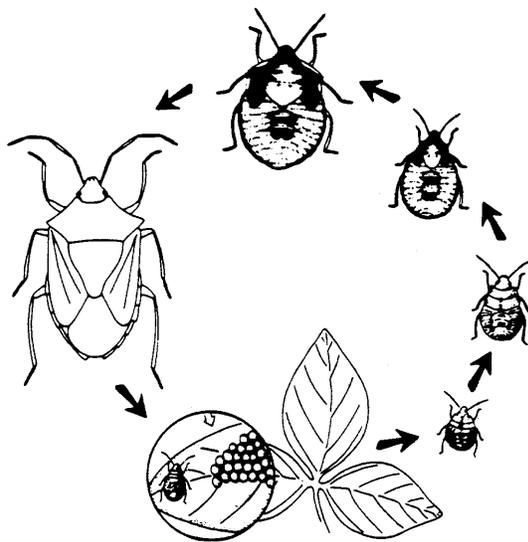


Figure 3. Life cycle of a stink bug.

Pods not formed normally;  
one or more seeds aborted  
or pods completely collapsed

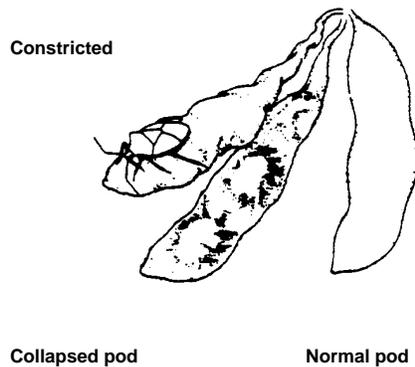


Figure 4. Stink bug injury to soybean pods.

from the lateral parts. In addition, the spined soldier bug has a dark round spot located centrally on the underside of its abdomen (belly). Be sure you are aware of the species present in a soybean field before making a control decision.

An insecticide application for control of stink bugs may be warranted when the level of infestation reaches one adult bug or large nymph per foot of row during pod fill. Suggested insecticides are Asana XL at 5.8 to 9.6 ounces per acre, Lorsban 4E at 2 pints per acre, PennCap-M at 1 to 3 pints per acre, and Warrior 1EC at 3.2 to 3.84 ounces per acre. Use of Asana, PennCap-M, and Warrior is restricted to certified applicators only.

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### Update on European Corn Borers

Although the numbers are not large, captures of European corn borer moths in at least one trap in Champaign increased recently. John Shaw, coordinator of the Insect Management and Insecticide Evaluation Program at the Illinois Natural History Survey, reported that moth captures in his light trap recently increased from 1 to 2 per night to more than 10 to 20 per night

during the first week of August. However, the captures dropped to zero on August 10. In addition, Maria Venditti, my graduate student, and her crew found several freshly deposited egg masses in some corn fields in Sangamon County on August 5.

Although this slight increase in corn borer activity this late in the summer is somewhat surprising, we doubt that this “blip” represents anything significant for field corn. However, we wanted to let you know that people are still monitoring for corn borers. We have received no reports of any significant corn borer activity anywhere else in the state.

Scouting guidelines and management suggestions were offered in last week’s issue (no. 20, August 7, 1998) of the *Bulletin*. Although the threat posed by second- or even third-generation (southern Illinois) corn borers seems insignificant right now, continued vigilance will do no harm. Larvae that infest more mature corn cause less physiological damage than larvae that attack earlier in the season, but stalk breakage and ear drop are always concerns. Recall 1997.

Densities of European corn borers in 1998 will be among the lowest densities we have recorded in the past several years. The weather this year undoubtedly had a profound effect on survival of corn borers, emphasizing once again that densities of corn borers during any given year cannot be relied upon to predict what might happen the next year. Last year’s widespread and intense infestations of corn borers were followed this year by infrequent occurrences of corn borers. The reverse could be true in 1999: The low numbers of overwintering larvae could turn into heavy infestations of first- and/or second-generation corn borers if survival is good and the weather is more agreeable. Consequently, farmers who are considering whether or not to invest in *Bt*-corn need to keep this in mind.

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### Yellowstriped Armyworms, Anyone?

With so much late-planted corn in the state this year, none of us was surprised when fall armyworms reared their ugly heads, especially in southern Illinois. Well, a “cousin” of the fall armyworm, the more attractive yellow-striped armyworm, has also appeared this year. John Shaw observed that one of his sweet corn trials in Champaign County is heavily infested. Therefore, we assume that this infrequent pest also may be present elsewhere.

Like the fall armyworm, the yellow-striped armyworm is a tropical and subtropical species that migrates northward as weather conditions permit. When they arrive, the females deposit eggs, which are covered with the female’s body scales, in irregular masses on plant foliage. As soon as the eggs hatch, young larvae begin feeding on the leaves. The mature yellowstriped armyworm larva is 1 to 1-2/5 inches long and glossy black to gray, with dark triangular spots along the midline of the back. A yellow-stripe is evident along each side of the triangular spots, and there is a black spot above the hind legs. The head is brown, with a netlike pattern. Among caterpillars that feed on corn, yellow-striped armyworms are one of the prettiest. (Maybe you have to be an entomologist to appreciate this.)

Yellowstriped armyworms are occasional pests of corn, usually feeding on the leaves of young corn plants or in the whorl. Moderate infestations are not harmful, as long as the growing point of the plant is not injured. Control with insecticides is not economical unless feeding would cause heavy damage.

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## **PLANT DISEASES**

### **Section 18 for Tilt**

The State of Illinois has received a Section 18 label for Tilt fungicide on corn for control of gray leaf spot (GLS) and rust, to be applied post-silk. This label is in effect only until August 25, and all applications must be made on or before that date.

Tilt fungicide is designed to preserve yields in the presence of disease; it does not improve plant performance if diseases are not present. The basic guideline is that Tilt is most effective on susceptible hybrids showing lesions at or above the ear leaf following tasseling. If plants are 6 weeks past tasseling, then the effect from Tilt is minimal. Research studies by Dr. Hooker here with northern corn leaf blight demonstrated that leaf diseases cause the most loss if the upper leaves are infected either before tasseling or no later than 6 weeks post-tasseling.

Therefore, Tilt applications made very late probably have minimal impact. Producers should scout fields and choose those with highest yield potential, greater disease susceptibility, or a past history of gray leaf spot problems. Tilt should not be applied to every field.

Following are the guidelines for the Tilt label:

The Illinois Department of Agriculture has declared a crisis exemption under Section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act for the use of Tilt Fungicide (propiconazole) to control gray leaf spot and rust in corn in Illinois. The effective dates are from 12:01 a.m. August 10, 1998 to 11:59 p.m. August 25, 1998. The application rate shall be 4 fl. oz. per acre with no more than 12 ounces per season and a 30 day preharvest interval.”

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