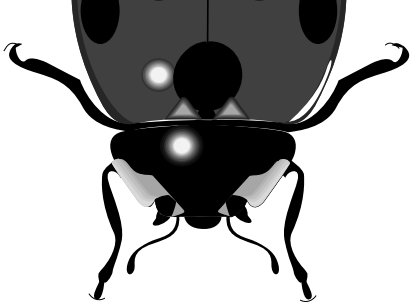

PEST MANAGEMENT & CROP DEVELOPMENT

BULLETIN

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In This Issue

INSECTS

Reports of Corn Rootworm Larval Injury Continue

As we begin August, observations of severe corn rootworm larval injury continue across northern Illinois. During the past week, rains have softened soils just enough to allow plants with poor root systems to lodge. In many of these fields, brace roots have been pruned by corn rootworm larvae. However, don't automatically begin "pointing" to corn rootworms as the only potential explanation for lodging.

Shallow root systems, in part caused by severe soil compaction, can predispose plants to lodge later in the season. This often occurs in fields with top-heavy plants following storms with heavy rains and wind. Fields that are severely lodged, especially in dry summers, often have very disappointing yields. Light interception by plants in these fields is not very efficient; at the same time, plants are devoting resources to regenerate root tissue when, instead, the ear should be the primary sink. I have observed fields with severe lodging caused by corn rootworm damage that ultimately produced "respectable" yields. In these cases, soil moisture was not a limiting factor during the pollination period. Slower and less efficient harvesting of lodged fields also needs to be factored into the final costs of corn rootworm damage.

Here's an observation from the field. Earlier this week, a research team led by Joe Spencer, an entomologist with the Illinois Natural History Survey, attempted to collect western corn rootworm females from soybean fields in northwestern Illinois. If your initial reaction to this statement is that there shouldn't be many western corn rootworms in soybean fields in this part of Illinois, you're correct! Joe's research team confirms that very few western corn rootworm adults can be found in soybean fields in the northwestern region of the state. This continues to be good news and supports our recommendation that crop rotation can still serve as an effective pest management tactic for producers in this area of Illinois.

After approximately 26,000 sweeps in soybean fields near Monmouth, they collected 250 western corn rootworm females. I believe this translates into 1 female captured for every 104 sweeps. In east-central and northeastern counties of Illinois, it's not uncommon to collect 5 or more western corn rootworm adults per sweep. As mentioned in the *Bulletin* last week, now is the time to make some scouting trips to your soybean field and determine the level of western corn rootworm activity. This investment in time will be of great assistance when determining the potential need for a soil insecticide next spring.—*Mike Gray*

Monitor Soybean Fields for Defoliators

By early August, soybean fields begin to support a diverse community of insect defoliators. While plants are growing and producing new leaves, soybeans can tolerate considerable defoliation without a yield penalty. But

during the early part of the reproductive stage, plants typically become more sensitive to defoliation. Soybean fields should be carefully monitored during pod development. Even at this stage of development (R4 to R6), soybean plants normally can withstand 20% defoliation. Obviously thresholds are not static and are affected by many factors such as the cost of treatment, anticipated market price of soybeans, and the level of stress that plants are under.

Defoliators to pay attention to in August include Japanese beetles, bean leaf beetles, grasshoppers, green cloverworms, and woollybear caterpillars. Defoliation by bean leaf beetles in soybeans appears as small, round holes in the leaves, quite different in appearance from the ragged, edge-of-the-leaf defoliation caused by grasshoppers, green cloverworms, and woollybear caterpillars, and also quite different in appearance from the lacy defoliation caused by Japanese beetles.

When scouting soybean fields for defoliators, don't confine your efforts just to field margins. Folks who walk only into field border rows may overestimate the level of defoliation. Often insects that move into fields will confine their feeding activities to these areas, resulting in a so-called edge effect. We recommend that a range of leaflets be examined for insect injury. Don't base your treatment decision just on leaflets collected in the upper one-third of the canopy. If pressed for time, you can probably focus on the top and middle portions of plants.

Finally, if a treatment appears warranted, based on overall defoliation, make sure that you have correctly identified the insect most responsible for the injury. Different insecticides may be labeled for different insects, and the rates of application also will vary by pest.—*Mike Gray and Kevin Steffey*

Blister Beetles: Common Inhabitants of Alfalfa and Soybean Fields

Last week, Robert Bellm, crop systems Extension educator at the Edwardsville Extension Center, reported finding blister beetles in alfalfa fields. Robert was collecting approximately one blister beetle for every 20 sweeps he made. At this point in the season, it's common to find these soft-bodied beetles in both alfalfa and soybean fields. Although the adult blister beetle is considered an occasional pest, blister beetle larvae prey on grasshopper eggs and are viewed as beneficial. Because they feed on grasshopper eggs, they tend to occur in greater numbers following years of high grasshopper populations.

They are soft, slender beetles about 5/8 to 1 inch long and may be solid black, gray, black with a gray border stripe, or brown with yellow stripes. Illinois has more than 20 species of blister beetles, but the most common ones infesting soybeans and alfalfa are the gray, margined, and striped blister beetles. Adult beetles feed on soybean foliage and leave only the main veins behind.

Blister beetles rarely cause economic damage to alfalfa, but they can cause problems as a contaminant in baled hay. Blister beetles contain an oily, caustic substance in their body fluids called cantharidin that helps protect them from natural enemies. Cantharidin is toxic and can severely injure livestock, particularly horses, when beetles are ingested with the hay. In fact, the beetle itself does not have to be ingested; hay contaminated with the body fluid of crushed beetles can be equally dangerous. The chemical irritates the stomach lining, small intestine, bladder, and urinary tract and reduces the calcium level in the blood. Horses that have ingested cantharidin may exhibit signs of colic, including excessive salivation, sweating, cramps, and urinary straining; a fatal dose will include fever, depression, shock, and death.

Cantharidin concentration in beetles varies by species. Some species may have 50 times more cantharidin than others. In addition, horses differ in their sensitivity to cantharidin. These variables, plus certain aspects of blister beetle behavior, make it difficult to establish strict guidelines for determining thresholds in hay. Some research suggests that as few as 5 to 10 beetles, when ingested, could cause severe injury and death in horses, but other research indicates that 30 or more beetles would be required.

Some blister beetle species tend to aggregate in clusters in a field, while others do not. Aggregating beetles may cause more problems because a few bales could contain many beetles, making contaminated bales much more toxic. Because of these variables, many horse owners require that the hay they purchase be blister beetle free. Cases of cantharidin poisoning in horses are rare in Illinois, but that is no solace to a horse owner who suffers a loss. The following steps will help to avoid a poisoning.

1. Use first-cutting hay to feed horses. Nearly all blister beetle species will still be immature during the first harvest of hay. Most adult beetles will die by late September, so the last cutting also should contain fewer beetles.

2. Harvest later cuttings of hay while the alfalfa is still in the vegetative stage. Research conducted in Kansas indicated that significantly higher blister beetle densities were found in bud- or bloom-stage alfalfa.

3. Scout alfalfa for blister beetle infestations before taking the second, third, and fourth cuttings. Sweep several sites (10 to 20 or more), especially in alfalfa near field borders, ditches, and weed spots. If blister beetles are present:

a. Cut hay without crimping or conditioning so that blister beetles are not killed, and leave windrowed hay as it is drying. This may not be very practical for most operators, but it has been shown to reduce the presence of dead blister beetles in hay.

b. Do not feed this hay to horses.

c. Consider the application of an in secticide. Sevin XLR Plus and Warrior are labeled products for blister beetles in alfalfa. Carefully read the label for preharvest restriction guidelines and other instructions. Warrior is a restricted-use insecticide and may be applied only by certified applicators.

d. It is sometimes suggested that the purchaser inspect hay before feeding. This may be unrealistic for most horse owners because it requires large amounts of time to thoroughly inspect the hay for dead beetles.

e. Horse owners who buy alfalfa hay should purchase only first-cutting hay. If later cuttings must be purchased, request that the hay suppliers follow the steps outlined previously.

If you suspect that your horse has been poisoned by blister beetles, contact your veterinarian immediately. Treatment will often include administration of activated charcoal and a saline cathartic, fluids, and mineral oil. A veterinarian also will monitor the horse's heart rate and control diaphragmatic flutter that is often associated with low blood levels of calcium.—*Mike Gray*

Soybean Aphids: Reports of Economic Infestations Few and Far Between

Thus far, perhaps the biggest surprise of this summer has been the scarcity of reports concerning economic infestations of soybean aphids in Illinois fields. Last week, during a field meeting in DeKalb, Kevin Steffey could find soybean aphids; however, he had to expend considerable effort to locate them. Yes, as we've reported, soybean aphids can be found in many fields if you look hard enough. And, yes, some fields have pockets where the aphids are more numerous. But overall, we've been fortunate across much of the state with respect to this new insect pest.

As the month of August unfolds, please let us know if you find densities of soybean aphids that you think warrant a treatment. Aphid densities can explode quickly, so this story could have a different ending by the end of this summer. So far, the very hot summer appears to have helped reduce infestations of soybean aphids. We will continue to learn a great deal about this insect in the coming years.—*Mike Gray*

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

The region received various amounts of rainfall last weekend and Monday, with reported amounts ranging from 0.5 to 1.6 inches. The majority of cornfields have completed pollination.

Bean leaf beetles are still present in soybeans, but to date, leaf feeding is below economic levels. Spider mite damage readily appears in soybean field margins, but few fields have been treated. Potash deficiency and stunting have been reported in small areas in several soybean fields.

Leafhopper populations continue to remain high in alfalfa. Oat harvest has been completed.

Just a reminder: The annual Agronomy Field Tour at the U of I Northern Illinois Agronomy Research Center, Shabbona, will be held next Wednesday, August 7. Tours will depart from the farmstead about every 15 minutes, from 4:00 p.m. to 5:00 p.m., and will last about 1 1/2 hours. A meal will be

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available on site at the conclusion of the tour. Also, the 2002 Illinois Forage Expo will be held, from 9:00 a.m. to 3:30 p.m., August 6 at the Kendall Guither Farm; Walnut, Illinois; Bureau County. The site can be reached by going 3 miles east of Walnut and then north 1 mile. The event will include field demonstrations of forage-harvesting equipment, commercial industry exhibits, and educational presentations.

West-Central Illinois

Various amounts of rain fell in most of the region during the last week. In some areas, downed corn has been reported as a result of high winds and heavy rain. In general, however, crop conditions have significantly improved.

Aphids and rootworm beetles are the major insects in corn, with some fields being treated for the problems. Second-generation corn borers have also been reported.

Soybean growth improved during the past week, with many fields now reaching normal plant size. Spider mites have been observed in some fields, but very little insecticide has been applied.

Alfalfa fields that were treated for potato leafhoppers look good, and some are now being harvested.

Farmers are now spending their time mowing weeds, cleaning grain bins, and getting ready for fairs.

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