

Stem Borer Found In Soybean Field Across Missouri

Infestations Heaviest In Bootheel Counties

COLUMBIA, MO. Dectes stem borer, an insect that tunnels in soybean plants, is now found in significant numbers in soybean fields surveyed in 12 counties in southeast Missouri.

Some fields have 85 percent of the plants infested, said Kelly Tindall, entomologist at the University of Missouri Delta Research Center, Portageville, Mo.

The insect can cause mature plants to fall over, or lodge, at harvest time in the fall.

Adult stem borers, also known as longhorn beetles, started emerging in late July from overwintering burrows in the dried soybean stems left in crop fields after harvest last year.

Tindall reported on the pest at the MU Crop Injury Diagnostic Clinic at MU Bradford Research and Extension Center, Columbia. Extension specialists and commercial crop advisers from across the state attended two two-day training sessions starting July 28.

Surveys by MU entomologists found stem borers in low numbers in major soybean counties along the Missouri River from St. Charles to St. Joseph and as far north as DeKalb and Lewis counties in northern Missouri. The entomologists surveyed random fields in all soybean-producing counties in the state last fall.

Tindall said the economic impact of the stem borer is unknown. "Sometimes the Dectes causes the plants to fall over. And sometimes not."

After adult longhorn beetles emerge from their burrows, they deposit eggs into leaf stems to restart the life cycle. After hatching, the larvae tunnel up and down the main stem of the plant.

Egg laying and hatching can cause yellowing of soybean leaves. Growers often assume that change in leaf color is the first stage of sudden death syndrome, a soybean disease, Tindall said.

When the larvae reach soil level inside the stem, they hibernate as partially grown larvae. Sometimes they girdle the plant, causing lodging. They go into pupation for about two weeks in late spring or summer before emerging as adult beetles.

So far, the main countermeasure is early harvesting when the soybean ripens, before the plants fall over.

"Insecticides kill adult beetles. However, the next day beetles can move back into a field," Tindall said. "The day after spraying, you will find dead beetles in the field, but you will also find new live beetles."

Prolonged emergence over the growing season makes insecticide control difficult. Larvae and pupae inside the stem are impossible to reach with spray.

Confounding the issue of damage is research that shows some soybean plants, with only one larva in a plant stem, produce more seed. However, the survey found up to six larvae in some plants. "It is likely those plants will have lower yields," Tindall said.

The adult Dectes stem borer is gray, ranging from dark to light. The beetles are about 3/4-inch long. Black-and-white antennae longer than the insect's body give the common name of longhorn beetle.

While many soybean pests come from China, the Dectes is native to the United States. Traditional host plants are weeds such as cocklebur, wild sunflower and both common and giant ragweed.

"When we survey and find these weeds in a soybean field, we often find more larvae in the

weeds than in soybean plants," Tindall said.

Wayne Bailey, MU Extension entomologist, said earlier that the beetle might have adapted to soybeans as the crop became more available than their weed hosts.

Dectes stem borers caused alarm among Bootheel growers in 1968 when they were first found in soybean fields south of Portageville. The insect caused damage for a few years and then seemed to disappear.

This behavior baffles entomologists. "We have



Dectes stem borer, a soybean pest.

Photo courtesy of Charles Olsen, USDA APHIS PPQ, Bugwood.org

no idea what happened to them," Tindall said. "Changes in tillage practices may play a role."

In today's no-till systems, stems from the last crop, which may be infested, remain on the soil surface. Early recommendations were to plow stems under at least two inches of soil. Few farmers still plow.

"This insect behaves differently from what was reported in the 1960s," Tindall said. She spends a good part of her time tracking and studying the pest. She has found the beetles to be active longer during the growing season than what the original researchers found.

Dectes stem borers also are found in central Kansas, she said. They are a major concern in commercial sunflower fields, where girdling causes crop loss.

Sunflowers, which have heavy seed heads, fall over more easily than soybeans, she said.

Dectes seems to thrive on sunflowers. "The longhorn beetles grow to almost twice the size of the beetles we find in soybean plants," Tindall said. While Dectes stem borers have been found in fields in southwest Missouri, the borers are not common in eastern counties of Kansas. The populations in the two states do not overlap.

An MU Extension guide sheet co-authored by Bailey and based on research from the 1970s was distributed at the field day. To download a copy, go to extension.missouri.edu and type "Dectes" in the search box.

The crop clinic at MU Bradford Farm provides annual updates for farmers and advisers to learn new crop threats and controls. Certified Crop Advisers earn required continuing-education units.

"The program may sound like it is the same old thing every year," said Tim Reinbott, superintendent of Bradford Farm. "But the content always changes."

The MU Extension guide "Soybean Pest Management: Dectes Stem Borer" (G7152) is available for purchase or free download at extension.missouri.edu/publications/Display-Pub.aspx?P=g7152. Δ