

Pest Status of the Soybean Stem Borer, *Dectes texanus*, in North America.

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Since 1985, the Dectes Stem Borer, *Dectes texanus* LeConte, (a.k.a. soybean stem borer, sunflower stem borer and sunflower stem girdler) has been a recognized pest of soybeans and sunflowers in Kansas. Over the last several years, reports of damage have gradually spread throughout much of the western 2/3 of Kansas, but mysteriously not in southeast Kansas.

The beetles lay their eggs in soybean leaf petioles during July and larvae tunnel and feed in the leaf petioles until they reach the 3rd instar. At that point they are able to tunnel through the base of the leaf petioles into the stems and into the stem. When they tunnel through the base of the leaf petioles they destroy the vascular tissue supplying the leaf so it often wilts and falls off the plant. This leaves an entry scar on the node which we call the "entry node". Once in the plant stem the larvae tunnel up and down the stem feeding as they grow. In the fall they migrate to the base of the plant and girdle the stem from the inside causing the plants to fall over or "lodge".

Recently we have become interested in trying to document the pest status of this insect in the United States. According to the information in the Entomological Society of America's (1994) "Handbook of Soybean Insect Pests", the Dectes stem borer is a native species distributed across North America east of the Rocky Mountains and is reported to be a pest from Arkansas to North Carolina south to the Gulf of Mexico.

The article states that the "Dectes stem borer is not recognized as a major pest, and its injury to soybean plants is commonly undetected because the damage occurs after the plants have matured and not all damaged plants are lodged." The article also states that "the importance of the pest may increase with increased no-till acreages, because tillage practices reduce the number of larvae that successfully overwinter in the crop residue."

We feel that the importance of this pest in Kansas has been increasing as was predicted in the Handbook of Soybean Insect Pests. The initial infestations in Kansas were in irrigated soybean production in the sandy soils of south central Kansas where tillage was limited due to concerns about soil erosion. As the adoption of no-till farming has increased to other areas of the state so have the reports of the Dectes stem borer. There has also been an increasing acreage of soybean planted in the state and this may well contribute to increasing the area-wide populations of this insect.

Thus, we thought it might be interesting to better document the distribution of the pest status of this insect in the United States. We need to identify those states that have experienced pest outbreaks of this insect. This information will also be useful in building a justification for getting a label for an insecticide that could be used to manage this pest.

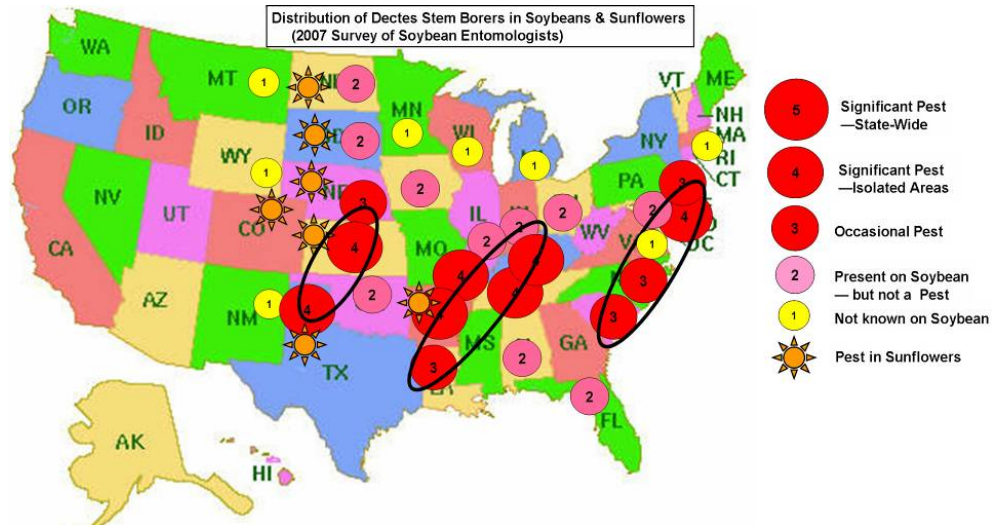
Methods:

To document the distribution of this insect, we decided to first search the literature to see if we could identify states where the insect has been reported to occur or to be a pest on soybean. In addition, we also contacted entomologists in each state east of the Rocky Mountains and asked them to complete a simple survey on the status of the Dectes stem borer in their state. The survey was sent by e-mail to an extension specialist, IPM specialists or soybean researcher in each state. The e-mail list started with the list entomologists on the soybean aphid regional project S1010. Then members from section E of the Entomological Society of America and other entomologists identified in a series of Yahoo! searches of the internet for Extension or IPM specialists were added to that list.

For states not yet responding to the survey we used published information from authors reporting about Dectes on soybean in their home state. We are not citing information based on citations. This removed the problem with one state reporting Dectes to be a pest in another state, while people in that state did not consider it to be a problem. We also decided to focus the discussion on soybean and only make notes on its occurrence on sunflowers and weed hosts.

Results & Discussion:

1. We received survey responses from 29 States (out of 40 surveyed) and used published information from another 3 states.
2. Dectes stem borers appear to reach pest status in three zones:
 - a. Across Texas, Kansas and into Nebraska
 - b. Along the Mississippi and Ohio Rivers and
 - c. Along the Atlantic Coast.



3. Dectes stem borers do not appear to reach pest status in several zones:
 - a. The main corn/soybean belt stretching from Eastern Kansas and Iowa to Ohio where soybeans are planted extensively.
 - b. The southern Gulf Coast from Mississippi to Georgia and Florida where insecticide treatments for other pests may limit Dectes stem borers.
4. There must be some asynchrony in the life cycle of the Dectes beetle and soybean cultural practices across the main corn-soybean belt.
5. Six states (in addition to Kansas) from Texas to North Dakota reported the Dectes stem borer to be a pest of Sunflowers.
6. Common names used:
 - a. "Dectes Stem Borer" (17 states)
 - b. "Soybean Stem Borer" (8 states)
 - c. "Sunflower Stem Borer" (2 state)
 - d. "Sunflower Stem Girdler" (1 state)
7. Management Recommendations in order of frequency:
 - a. Timely Harvest (8 states)
 - b. Crop Rotation (6 states)
 - c. Nothing Known (4 states)
 - d. Variety Selection (2 states)
 - e. Foliar Sprays (2 States)
 - f. Tillage, Narrow Rows, Late Maturing Varieties (1 State each)