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## **Abstract**

Last week a consultant near Creston, Iowa identified an interesting insect feeding on soybean. With the aid of a photo, we were able to confirm it as the threecornered alfalfa hopper, *Spissistilus festinus* (Hemiptera: Membracidae). This insect is native to the southern U.S. and South America and can be an economic pest of soybean in southern growing regions. ISU entomologists cannot recall a previous detection in Iowa.

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## Threecornered Alfalfa Hopper Found in Iowa

Erin Hodgson, Department of Entomology

Last week a consultant near Creston, Iowa identified an interesting insect feeding on soybean. With the aid of a photo, we were able to confirm it as the threecornered alfalfa hopper, *Spissistilus festinus* (Hemiptera: Membracidae). This insect is native to the southern U.S. and South America and can be an economic pest of soybean in southern growing regions. ISU entomologists cannot recall a previous detection in Iowa.

### Description

The threecornered alfalfa hopper has three life stages (egg, nymph, adult) and can have two to four generations a year in the southern U.S. Nymphs are initially white, but turn lime green or brown as they mature. Nymphs have 12 pairs of hairy spines along the back and protruding "tail" at the end of the abdomen (Fig. 1). In addition to the characteristic spines, this hopper has a triangular, wedge-shaped head. Nymphs go through five instars in about 9 to 18 days, and gradually develop wing pads. The Mexican bean beetle larva (Fig. 2) can be confused with the threecornered alfalfa hopper because it has spines and is bright green, but lacks a tail and has an oval body.



**Fig. 1. Threecornered alfalfa hoppers nymphs are lime green with obvious spines along the back. Photo by Charles Lewallen.**



**Fig. 2. Mexican bean beetle larvae should not be confused with this hopper. Note rounded head, oval body, and lack of a tail. Photo by Eugene L. Nelson.**

Adults are about 1/4 inch long and are taller than wide. The first segment in the thorax is greatly expanded and covers the abdomen (Fig. 3), hence the name "threecornered." Adults are also lime green, but the males have a red or orange stripe along the "shoulders" (Fig. 4). Threecornered alfalfa hoppers overwinter as adults under pine trees.



**Figs. 3 and 4. Adult threecornered alfalfa hoppers. Female left (Photo by Clemson University Extension) and male with red shoulders (Photo by Johnny N. Dell).**

### **Damage**

Threecornered alfalfa hoppers prefer legumes such as alfalfa, soybean and sweet clover. The nymphs and adults are phloem feeders, and puncture stems and petioles. Older nymphs typically girdle plants a few inches above the soil by creating a series of punctures around the stem (Fig. 5). Girdling restricts water and nutrient uptake and photosynthesis. Brittle stems break off weeks after attack, often following a wind event. Young soybean plants (up to V7) can be killed by vigorous hopper feeding, but adjacent plants often compensate by filling vacated row spaces. Threecornered alfalfa hoppers move up the maturing plant, feeding on lateral branches. Small pods may be aborted due to feeding punctures during the reproductive stages.



**Fig. 5. Typical feeding causes girdling around the soybean stem.** *Photo by David Adams, University of Georgia.*

### **Management**

This hopper rarely causes economic damage because soybean plants can compensate greatly. Reduced tillage areas and late planted fields are more likely to get infested. When plants are less than 12 inches tall, visually look for hoppers and initial girdling symptoms. As plants get larger, use a sweep net to capture adults and nymphs. Consider making a foliar insecticide application if 10 percent of plants (less than 12 inches tall) are infested or if 50 percent of plants are girdled. For reproductive soybean, consider treating when an average of one hopper per sweep is reached.

*Reference: Handbook of Soybean Insect Pests, L. G. Higley and D. J. Boethel (eds.), Entomological Society of America, 1994.*

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