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Soybean aphid: distribution and impact on soybean

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Soybean aphid: distribution and impact on soybean

Abstract

On June 16, Brian Lang, extension specialist-field crops, found soybean aphids on V2-stage soybean plants 3 miles southwest of Decorah in northeastern Iowa. Aphids were very uncommon and Brian described finding them like "looking for a needle in a haystack." The aphids were first found by following a trail of ants to the plant where the ants were collecting honeydew from the aphids. The highest density was 30 aphids per plant but aphids occurred on less than one plant out of 100. Most of the aphids were clustered on the youngest unexpanded trifoliolate leaf.

Keywords

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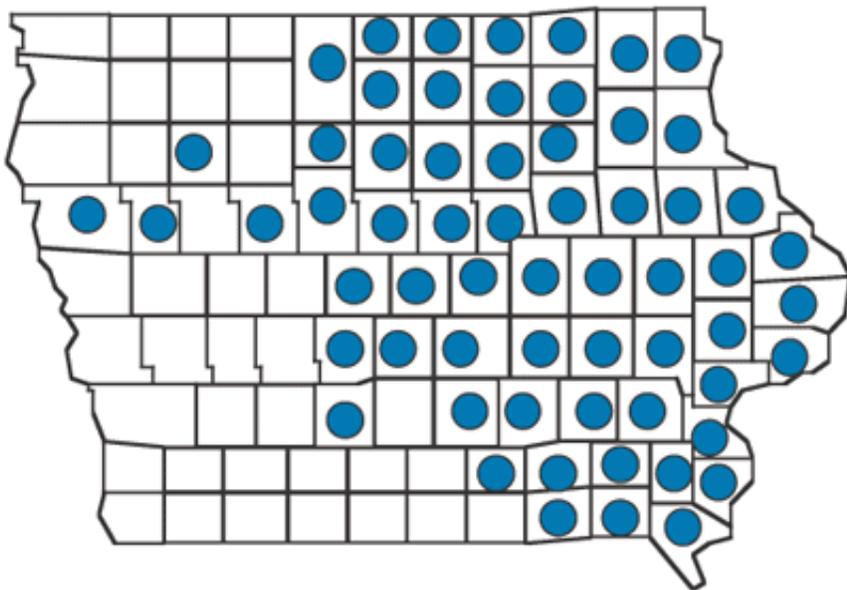
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INTEGRATED CROP MANAGEMENT

Soybean aphid: distribution and impact on soybean

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Known distribution of soybean aphids in 2001



Aphid description

All of the aphids found near Decorah were wingless, suggesting that a winged female gave birth on the plant and then either flew to another plant, died, or was eaten by predators. Wingless soybean aphid adults are approximately 1/16 inch in length, pale yellow or green, and have dark-tipped cornicles (tailpipes) on the back of the abdomen. These aphids feed through piercing-sucking mouthparts and have both wingless and winged forms. The soybean aphid is the only aphid in Iowa that produces offspring on soybean. Therefore, any small colony of aphids found on soybean must be that of the soybean aphid.



Ants collecting honeydew from soybean aphids on young soybean leaf.

[Enlarge](#) [1]

Biology and seasonal cycle

The seasonal cycle of soybean aphid is complex. The primary host is buckthorn (*Rhamnus*), a small woody shrub. Eggs are laid on buckthorn in the fall and overwinter there. The nymphs hatch in spring, giving rise to wingless females. These wingless females on buckthorn reproduce without mating and the young develop into winged females that migrate to soybean. These females on soybean produce wingless females that also reproduce without mating and give rise to active young in late May and June. Soybean aphids reproduce faster in cooler environments (72-77°F, with relative humidity below 78 percent, optimum) but when the temperature exceeds 81°F developmental time is lengthened. In China, this aphid develops through 15 generations on soybean during the growing season. In late summer, the wingless females produce young that develop into both winged females and males. These winged aphids migrate back to buckthorn, where the winged females produce wingless females that mate with the winged males. These mated females subsequently lay eggs, beginning a new seasonal cycle that passes through the winter.

Host plants

Soybean is the only crop that this insect infests in economically damaging levels in the Midwest. However, buckthorn seems to be a critical link to success of this pest. Iowa has records of six buckthorn species, including the *R. davurica*, which is a host reported by the Chinese. However, common buckthorn (*R. canthartica*), is the most prevalent in northern Iowa and lance-leaved buckthorn (*R. lanceolata*) in southern Iowa.



Soybean aphids suck sap from the plant, which drops onto leaves as honeydew. Black sooty mold often grows on the honeydew and discolors the plant.

[Enlarge](#) [2]

Next week in this newsletter, I will give a brief overview of scouting procedures, management guidelines, and insecticide performance data for soybean aphid.

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