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Abstract
On June 8, soybean aphids were being found in several Iowa locations. Brian Lang, Extension specialist-field crops, found one winged aphid on V1-V2 stage soybeans near Decorah. Virgil Schmitt, Extension specialist-field crops, also stated he had received a "report of a couple of fields being sprayed for soybean aphid between Wapello and Burlington." Brian Wischmeier, NK Seeds agronomist, also on June 8, had received information that a field near Mediapolis in southeastern Iowa had large enough populations in V4-V6 stage, 14-inch soybeans that honeydew was collecting on the pant legs of the farmer as he walked the field.

Keywords
Entomology

Disciplines
Agricultural Science | Agriculture | Entomology

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Description of Soybean Aphid

If you are unfamiliar with soybean aphids, they can be found as both winged and wingless forms on soybeans. Wingless soybean aphid adults are about 1/16 inch in length, pale yellow or green, and have dark-tipped cornicles (tail pipes) near the end of the abdomen. Aphids feed through piercing-sucking mouthparts. The winged form has a shiny black head and thorax with a dark green abdomen and black cornicles. The soybean aphid is the only aphid in North America that will reproduce on soybeans. Therefore, any small colony of aphids found on soybeans must be soybean aphids.

Biology and Seasonal Cycle

The seasonal cycle of soybean aphids is complex. Eggs are laid on buckthorn in the fall and overwinter there. The nymphs hatch in spring, giving rise to wingless females. There may be up to four generations on buckthorn in the spring. These wingless females on buckthorn reproduce without mating (asexually) and the young develop into winged females that migrate in search of soybean or possibly other host plants. Females on soybean reproduce without mating and produce wingless daughters that continue the cycle. During the summer, winged aphids may develop during any generation on soybean, which places much of Iowa soybeans at risk from pest invasion because the aphids are easily carried by winds to areas even where they aphid may not overwinter locally.

Soybean aphids reproduce faster in cooler environments. This may be a primary reason why
aphids have caused more damage in northern Iowa than southern Iowa. The optimum temperatures for reproduction and longevity are 72-77°F with the relative humidity below 78 percent. During optimum conditions, a soybean aphid population can double in size every 1 1/2 days. When temperatures exceed 81°F the developmental time is lengthened. The soybean aphid may have as many as 15 to 18 generations annually.

In late summer the wingless females produce young that develop into both winged females and males. These winged aphids migrate back to buckthorn, where they reproduce sexually. These mated females subsequently lay eggs, beginning a new seasonal cycle that passes through the winter.

Both winged and wingless soybean aphids can occur on a soybean leaflet.

The first detection of soybean aphids in Iowa has typically occurred near Decorah in northeast Iowa on seedling soybean plants (V1-V2 stage). For the past four years, the first aphids on soybeans have been found on June 18 (2001), June 16 (2002), June 5 (2003), and June 8 (2004). Scouting is essential in any field to determine the presence of aphids and their population size. See the next article on scouting and economic thresholds for suggestions on management decisions.

This article originally appeared on pages 65-66 of the IC-492(11) -- June 14, 2004 issue.

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