

Soybean Aphid Control Trials

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Projects at the Bean & Beet Research Farm in 2007

- a. *Soybean aphid RAMP Trial (final year)*
- b. *Syngenta efficacy trial*
- c. *Parasitoid release*
- d. *Suction trap*

The Field Crops Entomology Program had multiple soybean projects at the Bean and Beet Farm. The RAMP project compared aphid populations and yield in 1-acre replicated plots which were untreated, Cruiser seed-treated, sprayed on a threshold, and sprayed at the R3 stage with a tank mix of Warrior insecticide plus Headline fungicide. Aphid populations were extremely low in 2007. Thus there were no sprayable populations of aphids. Economically, the threshold-treated plots did not have to be treated, thus the economics were more favorable in the IPM based treatment than in the Cruiser or tank-mix sprayed plots. A similar trend was found in the efficacy study, testing Syngenta treatments. Aphid populations were extremely low and yield was not significantly different.

The first aphid host plant resistance trial was conducted in 2007 at the Farm. A susceptible and resistant soybean variety were compared side by side in replicated plots. The resistant material carries the RAG1 gene discovered at the University of Illinois. Unfortunately there were few aphids in the study, thus comparison in resistance could not be made. This study will hopefully be repeated in 2008.

A parasitoid release for soybean aphid control was made on the farm in 2007. The parasitoid, *Binodoxys communis*, is a tiny wasp native to Asia. The parasitoid was in quarantine for several years at the University of Minnesota, undergoing testing for efficacy and host range. In 2007, permits were obtained from USDA to release the wasp in eight states. In Michigan, releases were made at 9 locations, including the field just behind the farm buildings. This is the first classical biocontrol introduction for soybean aphid control. We will follow up in 2008 to see if the parasitoid can be recovered.

The Bean and Beet Farm also has one of the traps for the Northcentral Regional Aphid Suction Trap Network, which now has over 40 sites in the Midwest. The suction trap is a 24-foot tall pipe that draws in air as well as migrating aphids. The trap is changed each week, and the insect sample is sent to the University of Illinois for sorting and identification. This year, the trap recorded flights of soybean aphid fall migrants going back to buckthorn. The data from the network has lead entomologists to predict a soybean aphid outbreak in 2007.