BIOLOGICAL CONTROL OF SOYBEAN APHID

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The soybean aphid, *Aphis glycines*, is attacked by a variety of insect predators in Wisconsin soybean fields. This complex of beneficial insects appears to play a key role in regulating soybean aphid populations. In 2001 and 2002, soybean aphid densities have been highly variable and unpredictable from one area to the next. Much of this variability may be due to the relative strength of local populations of aphid predators. Surveys conducted in these two years indicate that the dominant aphid predator in Wisconsin soybeans is *Harmonia axyridis*, known commonly as the multicolored Asian lady beetle. Both larval and adult lady beetles feed upon soybean aphids. Field cage experiments in 2001 and 2002 measured the effect of *H. axyridis* predation on soybean aphid population size. In both years, as few as one beetle larva per seven soybean plants significantly reduced soybean aphid numbers. The presence of these beetles at or above this level should therefore be noted when scouting for soybean aphids.

Conspicuous due to their virtual absence in our surveys for soybean aphid natural enemies were aphid parasitoids. Such parasitoids are generally considered to hold the greatest potential for reliable aphid control. Many species of these insects already exist in Wisconsin. To these native species, however, the soybean aphid is apparently an unacceptable host. *Aphelinus albipodus*, a soybean aphid parasitoid native to Europe and Asia, was released in three Wisconsin counties in 2002 to explore the potential for permanently establishing this insect. Parasitoid releases were made inside of field cages and in open fields in both Columbia and Dane counties. Open field releases were also made at a third site in Racine county. Upon release, *A. albipodus* immediately began to parasitize soybean aphids. Following the introduction of 1000 parasitoids into field cages containing 50,000 soybean aphids, 12% parasitism was achieved within one week. Approximately 40,000 parasitoids were released into the center of each field every other week from July 2 to August 27 and allowed to attack soybean aphids in the open field. At the Colombia and Dane county sites, peak open-field parasitism occurred in early August and coincided with the seasonal peak in aphid population. The Racine county site received very little aphid pressure, and *A. albipodus* parasitism remained low throughout the season. In both field cages and open fields soybean aphids were suitable hosts for complete development of the parasitoid. Documenting the overwintering success and spread of *A. albipodus* in 2003 is the next stage in evaluating the potential of this insect as a soybean aphid biological control agent.

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