

INTEGRATED CROP MANAGEMENT

Soybean aphids: economic thresholds

It was much sooner than I expected, but I knew eventually someone would find soybean aphids in western Iowa. Hal Tucker (Tucker Consulting, Storm Lake) reported on June 21 that he found soybean aphids near Correctionville in Woodbury County. Brian Lang, Iowa State University Extension field specialist-crops, continues to find small populations near Decorah and also has found them at Nashua on the Northeast Research and Demonstration Farm. Now we have to begin to think seriously about scouting for this insect.



Asian lady beetle feeding on soybean aphids.

[Enlarge](#) [1]

Scouting methods for the soybean aphid in Iowa have not been investigated. Therefore, procedures we use this year could have flaws. However, scouting must be conducted to determine aphid presence and abundance. In pest management, scouting information is of little use without having appropriate decision guidelines. Therefore, the following guidelines are based on the limited experience of entomologists in the Midwest regarding this insect.

1. Begin scouting fields the last week of June. Scout five locations per 20 acres. At each site, five plants can be picked, and the leaves turned over and searched for aphids. Field observations should be made weekly. If aphids are present, rough estimates of aphid numbers per plant should be attempted (i.e., dozen, hundred, several hundred, more than one thousand). Avoid treating soybean aphids when small populations are first found in the field.
2. Lady beetles, green lacewings, and other beneficial insects eat aphids in Iowa soybean fields beginning in mid-June. These predators probably will be most helpful in fields with populations that have not reached damaging levels and they could help hold populations down. Unfortunately, observations from last year suggest that these predators will not be able to significantly reduce the aphid population once it reaches damaging levels.
3. Begin intensive scouting for soybean aphids, especially in northeastern Iowa, in early July. Check the upper two or three trifoliate leaves for aphids. Aphids are most likely to concentrate in the plant terminal. A major concern is estimating aphid population size and determining a threshold or treatment level. The best that can be done now, because of limited research, is to develop management guidelines based on subjective experience from the field.
4. Take special note of winged aphids or "broad-shouldered" nymphs that are beginning to

develop wings. Nymphs with squared off shoulders are nearing the adult stage. If most of the aphids are winged or nearing this stage, they will leave the plant, and maybe the field, and an insecticide may not be needed because the population will rapidly decline.

5. Feeding effects of the aphids could worsen if plants are under stress from dry soil conditions.
6. Soybean aphids appear to damage late-planted soybean more than early-planted soybean. Closely scout late emerging soybean fields.
7. Consider using an insecticide to control soybean aphid in July when five criteria in the field are met:
 - a. soybean plants are in the R1 stage (first bloom) or later,
 - b. aphid populations are heavy and cover the upper trifoliolate leaf on a majority of plants,
 - c. lower leaves are not yet covered with aphid honeydew or turning black from sooty mold,
 - d. infested plants do not yet appear stunted, and
 - e. a majority of aphids are not winged or developing wings.

If plants are covered with honeydew or sooty mold and appear stunted, an insecticide may still be of value but the optimum time for treatment would have been before these conditions became noticeable.

Another question is what to do with fields that have low or moderate-sized populations of aphids. There are no clear answers but the fields should be scouted through mid-August. Heavy rains and beneficial insects may reduce low or moderate populations slightly, but insecticides may be the only option in achieving a substantial reduction if the population reaches the conditions stated above.

If an insecticide is sprayed, an unsprayed test strip should be left in the field to compare and evaluate against the sprayed sections. The unsprayed test strip is needed to effectively compare the real value of the insecticide treatment and determine its performance. Data from Iowa and neighboring states show that not all insecticides provide equal levels of control. Presumably these increased aphid numbers resulted from the suppression of beneficial predators. The soybean aphid appears to rebound from some insecticides and a high level (99 percent) of control is desired. High water volume and high pressure also have been suggested as ways to improve soybean aphid control, especially in fields with a dense plant canopy. Insecticide performance data can be found in the 2001 Proceedings of the Integrated Crop Management Conference, Iowa State University. Several insecticides (Table 1) are labeled for soybean aphid (or Chinese aphid on some labels).

Table 1. Insecticides and product rate per acre labeled for soybean aphids in soybean. Read and follow all label directions.

Product	Rate/Acre	Preharvest Interval (days)
Asana XL*	5.8-9.6 ounces	21

Furadan 4F*	0.25-0.5 pint	21
Lorsban 4E*	1-2 pints	28
Mustang ^a	3.4-4.3 ounces	21
Penncap-M*	1-3 pints	20
Pounce 3.2EC*	4 ounces	60
Warrior*	3.20-3.84 ounces	45

*Restricted-use insecticide.

^aAids in control.

This article originally appeared on pages 127-128 of the IC-488(15) -- July 1, 2002 issue.

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[1] <http://www.ent.iastate.edu/imagegal/coleoptera/lady/asianladysba.html>

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