Managing Late-Season Soybean Aphids

Management of late-season soybean aphid (SBA) populations is complex because of the number of factors which influence population growth and potential for damage. Give careful consideration to each of these factors before deciding on a control recommendation.

- beneficial insects
- white dwarf soybean aphids
- signs of aphid diseases
- cast or "shed" skins
- temperatures within canopy
- wheel traffic yield loss, two-spotted spider mites

Economic Threshold:
250 or more aphids are found on 80% of the plants, and aphid numbers are rapidly increasing.

This threshold gives ~7 days lead time before economic loss is likely to occur. Rechecking populations of SBA over successive days will provide info to determine if aphid populations are increasing, yet provide sufficient time if an insecticide application is required

Crop stage: The 250 aphid/plant economic threshold is effective for the R1-R5 (first flower-full pod) development stages.

A threshold has not been developed for R6 (full seed) soybean, however, yield loss is unlikely to occur unless other stresses, like drought, are present.

Scouting:
Begin field scouting in late June (late vegetative to beginning bloom soybean growth stages), making one or two visits/field/week.

To calculate a field average, count the number of aphids on 20-30 plants/field, from a sample representative of at least 80% of the field.

A minimum of two field visits are required to determine if aphid populations are increasing.

Continue scouting until aphid populations decline, usually mid to late August.
Factors that affect Soybean Aphid (SBA) populations:

**Beneficial insects:** Monitor beneficial insect populations using sweep net or whole plant counts. If beneficial insect numbers are rising and aphid numbers are slow to increase, a no spray decision may be appropriate. (Image 1)

**Morph stage:** “White dwarf” soybean aphids are a specific morphological (morph) stage of the SBA population and develop in mid-summer. White dwarves are cream-colored, smaller in size, lives only 50% as long as normal aphids, and their reproductive potential is 70% lower. If a significant portion of the field population is summer dwarves, the reproductive rate will be slower, and economic thresholds may not be reached quickly. (Image 2)

**Pathogens:** Insect pathogens can infect SBA under high humidity and temperatures. When present, these pathogens can quickly reduce SBA populations. Inspect SBA populations carefully and look for signs of infection which include fuzzy/discolored aphids. Continued sampling can determine if the pathogen is increasing and/or reducing SBA populations. (Image 3)

**Cast/shed skins** are a sign of rapidly increasing SBA populations. Immature aphids must shed their exoskeletons (skins) to complete development. (Image 4)

**Temperatures >90°F** can slow SBA population growth. However, this effect is complex because temperatures fluctuate within a rapidly growing and large plant canopy.

Wheel traffic can reduce yield at growth stages > R3 by 1-2% depending on boom width.

Two-Spotted Spider Mites can also cause yield loss. If present, choose an acaricide/insecticide which can control both pest species if they are present and above established thresholds. (Image 5)

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