Field Connections

Soybean Aphids

Soybean aphids have become an all too familiar pest and should be given the proper attention with scouting and treatment if necessary.

Biology and Description

The soft-bodied, yellow insects have two distinct cornicles "tailpipes" on the back abdomen, and may be winged or wingless (Figure 1).

Photo courtesy of David Ragsdale, University of Minnesota, Bugwood.org
Figure 1. Wingless soybean aphid colony.

Winged aphids are often observed in the spring and fall when populations are migrating between soybean and the primary host, buckthorn. Buckthorn is a small tree and the only known site that aphids overwinter and lay eggs.

During favorable conditions starting in June of 71-77°F and relative humidity of more than 78%, asexual reproduction (cloning) can occur at a rapid rate. Females are born pregnant during summer months and give birth to 3-8 live young per day.

Scouting

Damage

It is important to scout often for aphids because populations can double after 2-3 days under favorable conditions. Damage from their sucking and piercing mouthparts can cause leaf puckering, reduced seed size and count per pod, and yield loss. Aphids can also spread soybean mosaic virus and alfalfa mosaic virus.

Visual Evidence of Aphids

- White shed skins attached to leaves. A product of aphids molting 4 times as they grow to adults
- Sticky honeydew on leaf surfaces. A waste produced by aphids from consuming plant sap. Ants may be observed harvesting honeydew directly from aphids.
- Sooty appearance. A non-parasitic mold is associated with honeydew and may reduce light interception for and photosynthesis on plant parts where mold grows.

Evaluation

Fields near wooded areas habitat should be scouted first. Examine 20-30 plants throughout a field, paying attention to new trifoliate growth and undersides of leaves early in the season. Aphids can be found throughout the canopy as populations increase. When they begin feeding on stem tissue, which is a less desired food source compared to leaves, the count is usually above economic threshold.

Treatment

Economic thresholds are established to help make treatment decisions that result in a return on investment. Currently, the economic threshold recommended by most universities remains at 250 aphids per plant with numbers increasing.

Treatment decisions for soybean aphid should also consider the condition of the crop. Soybean growth stage and stress level are important variables when timing insecticide applications.

Soybean Growth Stage

Infestations from mid-vegetative through full pod stage can cause economic loss. When aphid levels reach economic threshold during early reproductive growth stages R1 through R4, greater yield losses are expected, compared to populations that peak in later stages R5 and R6. Anticipate aphid numbers to level off or drop during August.

Options for Soybean Aphid Management

Insecticides

- *Organophosphates may be better suited for hot weather and heavy canopies. They offer a quick 'knock down' of aphids.*
- *Pyrethroids have some residual aphid control which may be helpful if treatment is necessary early the in season. They are most effective at temperatures below 90°F.*
- *Tankmixes are usually compatible; follow all product label directions and try a jar test.*
- *Good coverage is important. Use 15-20 gallons per acre spray volume.*

Cultural Practices

- *Support activity of natural soybean aphid enemies: lady beetles, lacewing larvae, syrphid fly larvae and insidious flower bugs.*
- *Scout for and control buckthorn where possible.*