

JAPANESE BEETLES ON CORN & SOYBEANS

07/02/2018

- Japanese beetles have been observed actively feeding in some areas across the region this summer.
- Damage is usually worse on field edges so you'll tend to overestimate damage if you only scout these areas.
- Soybeans can tolerate high levels of defoliation between the bloom and pod fill stage (20-30%).
- Treatment thresholds for corn are recommended if three or more beetles are found per ear and pollination is less than 50%.

Description and Life Cycle

Originally from Japan, Japanese beetles were first reported in New Jersey in 1916. The adults are shiny, metallic green with a coppery-brown wing cover. They have six pairs of patches of white hairs along the sides and back of the body. Both females and males are about ½" long, same colors and markings although females are slightly larger than males.

Japanese beetles have one generation per year. Adults emerge from the soil in late June-August (at about 1000 degree day units) and feed on the foliage of a wide variety of plants. Adults mate and females go down to the soil to bury their eggs. One female can lay up to 60 eggs over a period of approximately two months. Adult females typically lay their eggs on soils with high soil moisture to ensure survival of their offspring as eggs are very susceptible to desiccation. High numbers of beetles do not necessarily mean high grub infestations in that particular field the following year as adults may move long distances to find suitable soils for egg laying. The eggs hatch in about two weeks and grubs begin feeding on plant roots and organic matter. As soil temperatures cool down, the grubs move deeper in the soil and overwinter 2-6" below the soil surface. As soil temperatures warm up the following spring, grubs move up in the soil to the top few inches. These grubs feed again on plant roots and organic matter, pupate and adult beetles emerge again in late June.

Damage

Japanese beetles feed on foliage or flowers of over 300 species of plants including fruits, vegetables, ornamentals, field and forage crops and weeds. Due to their feeding habits, they are known to be skeletonizers; they feed between the veins leaving a lace-like skeleton (Pic. 1). The odors generated from beetle fed plant tissue appear to be an important factor in the aggregation of beetles. In corn and soybeans adults can reduce the yield potential by interfering with pollination in corn and damaging leaf tissue and pods in soybeans.



In corn, the adults feed on leaves, tassels, silks and pollen (Pic. 2). However leaf feeding is unlikely to be of economic importance. The economic damage to corn is done when Japanese beetles clip the silk before or during pollination. This can result on corn ears being partially pollinated. Silk clipping after pollination is not of economic importance as it does not affect yields. An insecticide treatment is recommended during silking if:

- 3 or more Japanese beetles are found per ear,
- Silks have been clipped to less than ½” and pollination is less than 50% complete.

On soybeans, Japanese beetles can cause high levels of defoliation (Pic. 3). Scouting is important during flowering time and treatment should be considered if:

- 30% defoliation occurs before bloom
- 20% defoliation is observed between bloom and pod-fill.

Scouting and Management

When scouting for Japanese beetles keep in mind that higher numbers may be found on field edges. These beetle counts and defoliation assessments might not always represent true pest levels and may suggest unnecessary treatment thresholds. Make sure to estimate Japanese beetle damage in at least five different random locations within your field.

Management of Japanese beetles can be challenging as the adults are emerging and active over a long period of time. There are some insecticides labeled for control of Japanese beetles on corn and soybeans. However a lot of these insecticide options are pyrethroids with short residual activity which will require a second application depending on beetle activity. Additionally, even though there are a few suggested treatment

thresholds for these crops, there are other factors that need to be taken into consideration when deciding on a treatment option. For example, when plants are under other types of stress, the treatment threshold may need to be adjusted. Commodity prices are an important factor in deciding whether an insecticide application warrants and it makes sense financially.

[Suggested reading here.](#)



Image 1. Skeltonizing feeding pattern of Japanese beetles. (Source: GROWMARK, Inc.).

Image 2. Japanese beetles feeding on ear tip. (Source: GROWMARK, Inc.).

Image 3. Japanese beetles feeding on soybean. (Source: GROWMARK, Inc.).