# JAPANESE BEETLE

Soybean Pests







## Overview

The Japanese beetle (*Popillia japonica*) is native to Japan. Originally a southern pest, they have gradually moved across most of the U.S. soybean growing regions. They have one

generation per year. They emerge from the soil in late June and begin feeding on low growing plants. They begin feeding on soybeans in early July and continue through late August or early September. In late August to early September, the beetles will mate and lay their eggs in the soil where they will hatch into larvae (grubs) and remain there until the next growing season.


*Photo Credit: USDA ARS Photo Unit , USDA Agricultural Research Service, Bugwood.org*


*Photo Credit: David Cappaert, Bugwood.org*


*Photo Credit: Steven Valley, Oregon Department of Agriculture, Bugwood.org*

## Scouting

### Identification

The adult is about 1/2 inch (13 mm) long, metallic green with bronze colored wing covers. Tufts of white hair are visible around its abdomen, just below the wing covers (Figure 1).

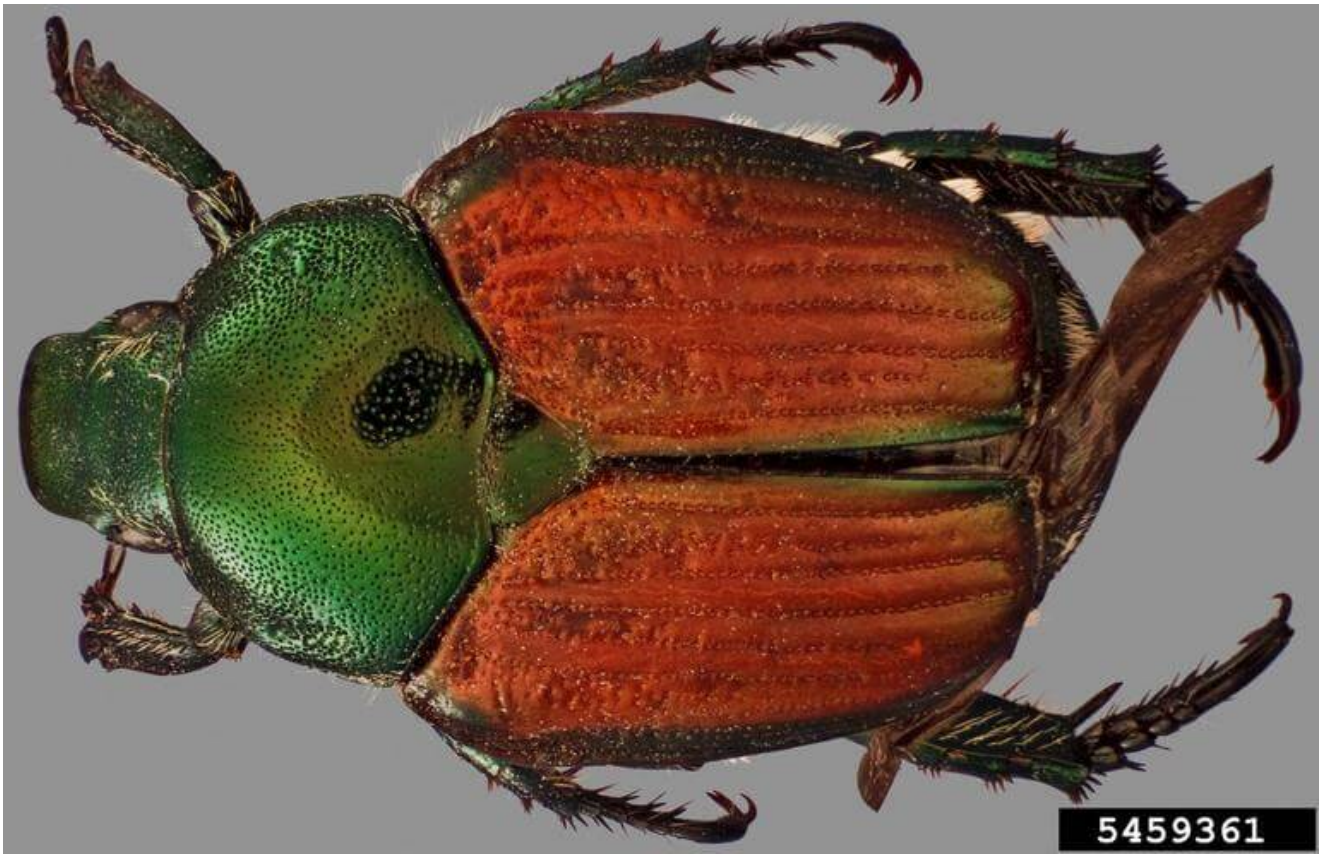


Figure 1. Adult Japanese beetle, Photo: IPMImages.org: Steven Valley, Oregon Department of Agriculture, Bugwood.org

Management decisions are not based on the number of beetles in the field, but rather the amount of leaf defoliation percentage that occurs from their feeding. Japanese beetle will feed on soybean leaves between the leaf veins and will cause a very characteristic skeletonizing or lace-like pattern of the soybean leaf. It is much different from the jagged feeding caused by grasshoppers or the circular wholes left by bean leaf beetle or green cloverworm feeding.

While the actual number of beetles in the field is not important, you should confirm the presence of the beetle in the field. Scout throughout the field rather than just along field edges where clusters of Japanese beetles aggregate and feeding can sometimes be more concentrated. Field edge/border treatments may be sufficient if damage is confined to this area, but interior field scouting is recommended.

In addition to percent defoliation estimates based on observation of field areas with beetles and obvious defoliation damage, a systematic field sampling method is to select 10 plants throughout the field, choosing a trifoliate from the upper, middle and lower canopy on each

plant.  This will give you a 30-leaf sample to assess whether feeding is progressing through the canopy or only in the upper canopy. For soybeans in the vegetative stage, the defoliation threshold is 30 percent. Beginning with flowering, the threshold is reduced to 20 percent defoliation. The eye has a tendency to overestimate the damage, so use of a defoliation guide can be useful (Figure 2).

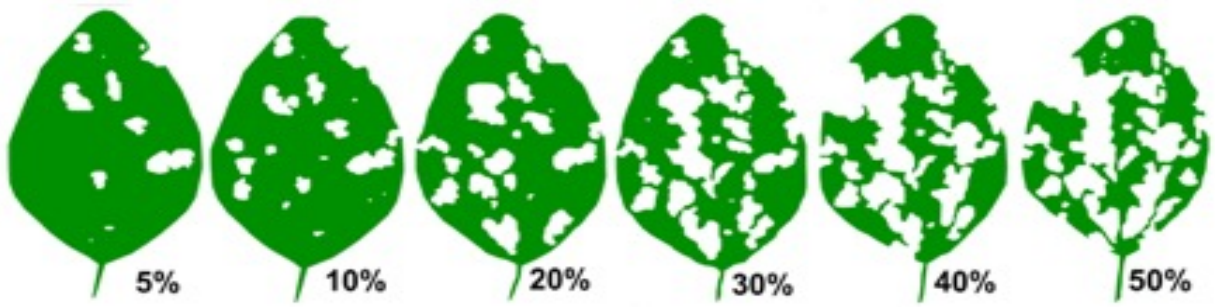


Figure 2. Soybean Defoliation Guide, University of Nebraska-Lincoln CropWatch

## Management

If control is necessary, contact your state Cooperative Extension Service for recommended materials and rates.

Do not treat too early for Japanese beetle (defoliation < 20%). This is particularly important if you have two-spotted spider mite populations in the field. Pyrethroid insecticides are labeled for Japanese beetle control in soybean, but some pyrethroids provide mite suppression only, and may flare, or increase mite densities.

## Resources

**Japanese beetle**
*University of Illinois Extension*
http://extension.cropsciences.illinois.edu/fieldcrops/insects/japanese_beetle/

**Japanese Beetle**
*Purdue University*
https://extension.entm.purdue.edu/fieldcropsipm/insects/soybean-japanese-beetle.php

**Integrated Pest Management of the Japanese Beetle in North Dakota**
*North Dakota State University*
https://soybeanresearchinfo.com/wp-content/uploads/2019/03/E1631.pdf

SOYBEAN RESEARCH & INFORMATION NETWORK

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