

# JAPANESE BEETLES

## Quick facts

Japanese beetles are an invasive species.

- Japanese beetles feed on the leaves, flowers or fruit of more than 300 species of plants.
- Japanese beetle grubs are pests of turfgrass. They chew grass roots, causing the turf to brown and die. Grub-damaged turf pulls up easily from the soil, like a loose carpet.
- In Minnesota, Japanese beetle has been found in many counties but is only known to be abundant in some.
- Nonchemical and insecticide options exist for managing Japanese beetle adults and grubs.

## How to identify Japanese beetles

### Adult

- Approximately 1/3 to 1/2 inch long.
- Metallic green head and thorax (the area behind the head) with copper-brown wing covers.
- The sides of the abdomen have five white patches of hair, and the tip of the abdomen has two patches of white hair.

### Larva (white grubs)



Japanese beetle grub (white grub)

- C-shaped, white to cream-colored grubs with a distinct tan-colored head.
- Legs are easy to see.
- From 1/8 inch up to about one inch long.
- Japanese beetle grubs look like other white grubs and can only be positively distinguished by examining the pattern of spines and hairs on the underside of the tip of the abdomen.

### Life cycle

- Japanese beetle grubs spend the winter underground in the soil of lawns, pastures, and other grassy areas.
- In spring, grubs move up near the soil surface to finish feeding and pupate into adult beetles.
- Adult beetles start to emerge from the ground in late June or early July. They can fly up to several miles to feed.
- Adults feed primarily in July and August, although some may be active into September.
  - Beetle-damaged leaves emit feeding-induced odors that attract other beetles (like sharks to blood).
  - This often results in large clusters of beetles feeding and mating on particular plants while neighboring, equally attractive plants are only lightly infested.
- Virgin females produce a sex pheromone for mating that is highly attractive to males.
- After mating, females tunnel underground in the soil one to three inches to lay eggs.
  - Females will lay eggs several times during July and August, totaling as many as 60 eggs.
  - Dry soil conditions can reduce egg survival, resulting in fewer adult beetles the following year.
  - The eggs hatch in about two weeks and the grubs feed mainly on the roots of lawn grasses.

- Grubs go through three different growth stages (instars) during the summer becoming progressively larger with each stage.
- As the soil starts to cool in the fall, the nearly mature, full-sized (third instar) grubs dig deeper in the soil, where they spend the winter.

### Damage caused by Japanese beetles

Japanese beetles are a serious pest of flowers, trees and shrubs, fruits and vegetables, field crops and turf. Adults feed on more than 300 plant species, whereas the grubs feed mainly on the roots of grasses.

### Adult Japanese beetle damage



Japanese beetles damaging an apple tree.



Japanese beetle damage on a rose.

Adult Japanese beetles feed on the leaves, flowers and fruits of many different plants. Preferred plants include rose, grape, linden, apple, crabapple, cherry, plum and related trees, birch, elm, raspberry, currant, basil, Virginia creeper, hollyhock, marigold, corn silks and soybean.

They skeletonize leaves by feeding on tissue between the major veins giving them a lace-like appearance. Damaged leaves turn brown and may fall off.



Japanese beetles on raspberries.

Adult Japanese beetle damage usually affects only the appearance of plants.

- Healthy, mature trees and shrubs can tolerate a lot of feeding without significant, long-term injury.
- Young or unhealthy plants may be stunted, injured or even killed from severe, persistent feeding.
- Healthy flowering plants such as roses can survive Japanese beetle feeding. But the blossoms are often ruined by the insects.
- Fruits, vegetables and herbs can tolerate limited leaf feeding, but severe damage may affect plant growth and reduce yield.
- Regular harvesting during July and August can decrease feeding on edible parts of the plant.

### **Japanese beetle grub damage**

Grubs chew grass roots and reduce the ability of grass to take up enough water and nutrients to remain healthy. When grub feeding is severe, dead patches of grass develop.

These dead patches can be rolled back like a carpet due to the lack of roots. If grubs are not found, examine still living turf at the edges of damaged areas for their presence.

Healthy turf grass can typically tolerate up to 10 grubs per square foot. Follow recommended lawn care practices to promote a healthy lawn.

Moles, skunks, crows and other insect-feeding animals may dig up grubs, further damaging the turf.

### **White grub damage on lawns**



Information and photos courtesy of:

