

# JAPANESE BEETLES



## DESCRIPTION

Japanese beetle adults are one-half inch long, shiny, metallic green, oval insects. They have coppery-brown wing covers with five tufts of white hairs along the sides of their bodies. The larvae of Japanese beetles are white grubs with three pairs of jointed legs and a yellow-brown head. They assume the typical C-shaped position in the soil as other grubs.

## LIFE CYCLE

The Japanese beetle has a one-year life cycle but spends most of its life in the soil as a grub. In March, the over-wintering, partially grown grubs move upward in the soil, where they feed on turf grass roots. From mid-May to June, the young larvae pupate. After pupating, adults begin to emerge from late-June to August. The female Japanese beetles release a pheromone that attracts males, causing them to congregate in groups. Mating and egg laying begins soon after emergence. Japanese beetle adults feed during the day on a wide variety of low-growing plants and later fly to tree leaves. Adults typically live for 30 to 45 days. Once mated, females lay eggs in the lawn and other grassy areas just under the soil surface. Eggs soon hatch and young larvae begin to feed on roots of nearby grass and other plants until cold weather forces them to move deeper into the soil for the winter. As the soil temperatures warm in the spring, the grubs return to the surface to complete their life cycle.

## SYMPTOMS

The adult and larval stages of the Japanese beetle can be quite destructive. The adult beetles feed on over 300 species of ornamental plants, with roses, lindens, crabapples, elms, birch, and maples being preferred hosts. Typically, adult beetles feed in large groups on the upper leaf surface, leaving only a lace-like skeleton of veins. They can also devour flowers and ripening fruit, and if large populations are present, they can defoliate a large tree. Feeding damage caused by beetles usually results in leaves turning brown, dying, and eventually falling off. Trees and shrubs rarely attacked by

Japanese beetles include red and silver maples, boxwood, euonymus, juniper, arborvitae, magnolia, ash, hydrangea, spruce, and yew.

The Japanese beetle grubs feed below ground on cool-season turf grass and ornamental plant roots. Feeding can cause severe damage to an entire plant's root system. Large areas of lawn can be destroyed in a relatively short period of time by grubs or digging animals (skunks, birds, and raccoons) that feed on grubs. First evidence of injury by grubs is a localized patch of pale, discolored, and dying turf grass, symptoms similar to drought stress. As grubs expand their feeding range, the small damaged areas enlarge and turf can easily be lifted and rolled back like carpet to reveal the grubs. If 10 to 12 grubs exist within one square foot, treatment is warranted.

## **CULTURAL CONTROL**

*For Adult Japanese Beetles* Handpicking the beetles off isolated plants or knocking them into jars of soapy water will reduce populations. Commercial Japanese beetle traps and pheromone lures are available, however, research has shown that the use of traps will not protect plants from damage, and may in fact attract more beetles into the area.

*For Grubs* Because eggs and young grubs cannot survive in relatively dry soils, do not irrigate during beetle activity to help reduce grub populations. The bacterial milky spore disease, *Bacillus popillae*, kills grubs in the soil. The dead grubs then produce bacterial spores that remain in the soil to infect future grubs. Milky spore disease, available in selected garden centers, is applied to the soil, but takes 2-3 years before spore counts build to become effective.

## **CHEMICAL CONTROL**

*For Adult Japanese Beetles* Feeding injury from adult beetles rarely causes death of a plant. Avoid unnecessary spraying by protecting only highly valued or aesthetically visible plants from feeding injury. Spray every 4 to 7 days while beetles are present.

*For Grubs* Most soil insecticides provide short-term control of Japanese beetle grubs if applied from mid-August through September. Treated areas must be watered with 1/2 inch of water after application to move insecticide down near the turf root zone where grubs are found. It will usually take 10-14 days for the grubs to die, but they cease feeding within 24 hours.