

## *History of Japanese Beetle*

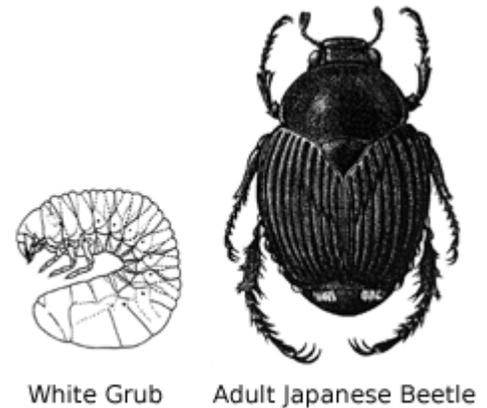
The Japanese beetle, *Popillia japonica* Newman, was detected in New Jersey in 1916, having been introduced from Japan. It is common for this pest to be abundant in one part of a town and not others. The adult beetles eat the leaves and flowers of over 300 plants by eating the tissue between the veins, a type of feeding called skeletonizing. The larvae, called white grubs, feed on plant roots and organic matter in the soil, especially under turfgrass. This feeding may result in dead patches of turf that can be picked up like a loose carpet.

### **Description of the Beetle and Its Larva**

The adults are a brilliant metallic green, generally oval in outline, 3/8 inch (8 to 11 mm) long and 1/4 inch (5 to 7 mm) wide. The wing covers are a coppery color and the abdomen has a row of five tufts of white hairs on each side that are diagnostic. The larvae are typical white grubs that are C-shaped when disturbed. First instar larvae are about 1/16 inch (1.5 mm) long while the mature third instars are about 1-1/4 inch (32 mm) long.

### **Life Cycle and Habits**

The adult beetles normally emerge during the last week of June through July. The first beetles out of the ground seek out suitable food plants and begin to feed. These early arrivals begin to release an aggregation pheromone (odor) that attracts additional adults. Newly emerged females also release a sex pheromone that attracts males. After feeding and mating for a day or two, the females burrow into the soil to lay eggs at a depth of 2 to 4 inches. Females lay 1 to 5 eggs before returning to plants to feed and mate. This cycle of feeding, mating and egg laying continues until the female has laid 40 to 60 eggs. Most of the eggs are laid by mid-August though adults may be found until the first frost. The eggs hatch in 8 to 14 days and the first instar larvae dig to the soil surface to feed on roots and organic material. The first instars shed their skin (molt) in 17 to 25 days. The second instars take 18 to 45 days to mature and molt again. Most of the grubs are in the third instar by late September and by October they dig deeper into the soil to overwinter. The grubs return to the surface in the spring as the soil temperature warms, usually in mid-April. The grubs continue their development and form a pupa in an earthen cell 1 to 3 inches in the soil.



### **Control Strategies**

#### *Cultural Control - Plant Non Attractive Plants*

The adults do not like to feed on ageratum, arborvitae, ash, baby's breath, garden balsam, begonia, bleeding heart, boxwood, buttercups, caladium, carnations, Chinese lantern plant, cockscomb, columbine, coralbells, coralberry, coreopsis, cornflower, daisies, dogwood (flowering), dusty-miller, euonymus, false cypresses, firs, forget-me-not, forsythia, foxglove, hemlock, hollies, hydrangeas, junipers, kale (ornamental), lilacs, lilies, magnolias, maple (red or silver only), mulberry, nasturtium, oaks (red and white only), pines, poppies, snapdragon, snowberry, speedwell, sweet pea, sweet-William, tuliptree, violets and pansy, or yews (taxus).

#### *Chemical Control - Insecticide Spraying*

The adults can be controlled by spraying susceptible plants with insecticides. During the heavy adult activity periods, sprays may be needed every 5 to 10 days.

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