

GREEN JUNE BEETLE

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Green June beetle, *Cotinis nitida* L., adults feed with enthusiasm on ripening stone fruit. Green June beetle is native to the United States in an area bounded by Texas, Nebraska, New York, and Florida. The insect was first described as a pest of tobacco and truck crops in the early 1900s. Green June beetles lay their eggs in the soil, preferring soils rich in decaying organic matter, which makes up a large part of the grub's diet. Manures of all sorts and high organic matter soil amendments encourage green June beetle infestations. The fruit-feeding adults are typically most abundant where highly fertilized pastures are adjacent to orchards. Although green June beetle grubs prefer to feed on decaying organic matter, their surface-burrowing behavior also damages grasses and turf.

DESCRIPTION



Figure 1. Adult green June beetle.

Green June beetle adults are velvet green with orange- or rust-colored stripes along the outer margins of the wing covers (Figure 1). Beetles may be nearly 1 inch (25 mm) long. Green June beetle grubs are white, have six legs, grow up to 2 inches (51 mm) long, and about 1/2 inch (13 mm) thick. Grubs have the unique behavior of crawling on their backs as they work their way into and through the soil. This movement easily distinguishes them from other white grubs in the soil at the same time of year. When disturbed, the grubs curl up into a C-shape, typical of the grubs in their family, the scarab beetles.

SEASONAL HISTORY AND HABITS

The green June beetle completes one generation each year. It overwinters as a partially grown larva. Grubs can burrow as deep as 10 inches in the soil, but they are frequently active at the surface when the surface soil temperatures reach 60°F. Surface feeding may occur in January or February from Alabama to Georgia and as late as April in Arkansas. Disturbed soil surface, with excrement similar to mouse droppings, may be visible in lush grassy areas where manure piles have decomposed. Grub activity increases as spring weather becomes consistently warmer. In May and June, larvae form a soil cell at a depth of 2 to 6 inches. They pupate inside and remain in the pupal stage for 2 or 3 weeks. Adults mature, but remain in the soil cell for an additional week or two. From late June through July, waves of adult emergence occur after rains soften the soil. As they emerge, females release sex pheromone (calling) to attract males from mid-morning to mid-afternoon. Adult males fly in a zigzag fashion waist-high over pastures in search of females. After mating, the female flies close to the turf surface and selects a moist site with high organic matter, such as decomposed manure piles or decomposed hay. She digs 5 inches into the soil, constructs a walnut-sized ball of soil and inserts 10 to 30 eggs into the ball. Eggs are initially oblong. If the soil is sufficiently moist, eggs will swell, become round and double in size to about 1/16 (2 mm) inch diameter. The cycle of feeding, mating, and egg laying continues until the female has laid up to 100 eggs. Eggs hatch in about 2 weeks. Newly hatched grubs are about 3/8 inch (9 mm) long. Young grubs tunnel to the surface where they feed on organic matter at night and move down the tunnel during the day. As the soil cools in the fall, grubs move into the soil and overwinter.

PLANT INJURY

Adult green June beetles mate, lay eggs, and feed on sap and ripe fruits. Beetles feed in groups that readily devour fruit (Figure 2). Beetle excrement fouls fruit. Green June beetles most often reach economically damaging levels where pastures are adjacent to orchards. Feeding on fruit extends adult longevity and results in increased egg-laying capacity. Once a sweet food source is located, the adults feed and emit an aggregation odor that attracts more adults to feed as a group. It becomes difficult to prevent fruit damage because adults continuously move into a fruit planting. Control is necessarily dependent on insecticides with short pre-harvest intervals before beetle populations reach critical levels.



Figure 2. Green June beetles on peach. Image by Clyde S. Gorsuch.

Grubs feed on organic matter at the soil surface. A small amount of green June beetle tunneling helps aerate the soil; however, extensive tunneling can be quite harmful to turf and seedling plants.

CONTROL

Normal orchard monitoring readily identifies green June beetle infestations in peaches. When adult green June beetle flights begin in adjacent pastures in late June or July, it is prudent to begin checking ripening peaches for beetle feeding. Some will find it useful to monitor for adult beetles by placing trays of fermenting fruit or watermelon on the orchard perimeter. Once adult June beetle flights begin, check several times a week for fruit feedings. Apply an insecticide when beetle attack first begins, and reapply if beetles continue to enter the orchard. Border sprays can be a valuable control option. Insecticide use must be carefully timed to conform to pre-harvest intervals. Use of insecticide-treated fermenting fruit trays, placed every 50 feet around the orchard perimeter, can significantly reduce the number of beetles entering the orchard to damage peaches. It is, however, important to take care to avoid poisoning non-target species.