

SMALL FRUIT CROPS

CORNELL COOPERATIVE EXTENSION

Strawberry Bud Weevil (Clipper)

Anthonomus signatus Say

The strawberry bud weevil (SBW), a species native to North America, is also known as the "clipper" because of its habit of clipping flower buds. In the United States, SBW is a widespread and common pest of strawberry, occurring from Canada to Florida and Texas, and from the Atlantic coast to Minnesota. It also attacks raspberry and blackberry, and is found on wild brambles and cinquefoil.

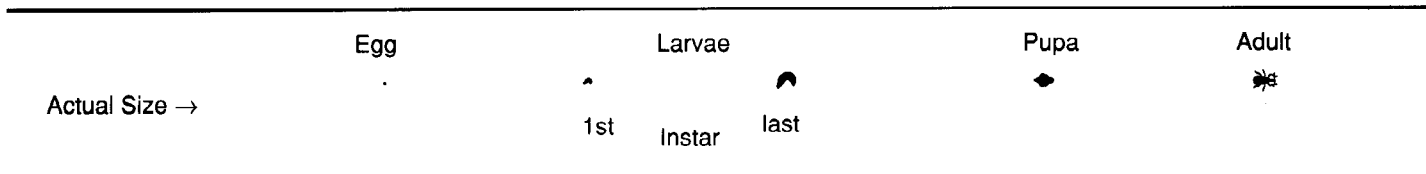
The Adult

The adult SBW is a beetle about 2.5 mm (0.1 in.) long and dark reddish-brown, with rows of punctures or pits along its back (fig. 1). It has a "snout" that is about half the length of its body, with chewing mouthparts (like other weevils).

SBW overwinters as an adult in fence rows adjacent to strawberry plantings, beneath the mulch within plantings,

or in wooded areas under plant "rubbish," particularly in locations with such flowering plants as red bud, wild brambles, and potentilla. Adults emerge when temperatures reach about 15.6°C (60°F)—mid-March in southern states to early May in Canada. They move into strawberry fields, where they feed on immature pollen by puncturing the blossom buds with their snouts. Often these blossoms, upon opening, have petals that appear to have been shot full of holes (fig. 2). The female deposits a single egg in the nearly mature bud, and punctures the bud with her snout, which severs the bud from its stem (fig. 3).

The larvae emerge from flower buds in late June through July. After they become adults, they feed on pollen of various flowers for a short time, then seek overwintering sites by mid-summer. They remain in those sites until the next spring, and there is only one generation per year.



The Egg

The SBW egg is translucent, broadly oval, and about 0.5 mm (0.02 in.) in length. After being deposited in the bud, it usually adheres to the stamens or pistils. The incubation period is about six days.

The Larva

Within one week after being laid, the egg hatches into a legless larva (grub). When extended, the larva is slightly over 2 mm (0.08 in.) and yellowish-white, often mottled with black (fig. 4). Although the larva is legless, it has slight, fleshy protuberances along the abdomen. The larva develops inside the severed bud and matures into a pupa in three to four weeks.

The Pupa

Pupation takes place within the severed bud, as does egg and larval development. The pupa is creamy white, and sometimes mottled with black (fig. 5). The pupal period is about ten days.

Damage

After depositing a single egg in the nearly mature flower bud, the female severs the bud to prevent it from opening and exposing the egg or larva. If the bud does not fall to the ground, it wilts and turns brown while hanging from the stem by a few strands of plant tissue (fig. 6). Yield losses from SBW damage have been reported to be as high as 50 to 100

percent. Early-season strawberry cultivars are generally more susceptible than late season cultivars to SBW damage. The beetles do not damage the foliage.

Control and Monitoring

Parasites can reduce overwintering populations of SBW, but they do so only after buds have been damaged.

Two applications of a pesticide are necessary to control SBW. The timing of treatments is critical and should be determined by frequent monitoring. Because the SBW adult is difficult to find, monitoring to determine the need for control is based on the first observation of clipped buds. This normally occurs at temperatures of 15 to 18°C (60 to 65°F) when blossom buds are just starting to emerge from the crown. Growers should apply the first spray when bud cutting begins, and the second spray about ten days later. One clipped bud per 0.6 m (2 ft) of linear row justifies treatment. This level of injury can be caused by a single female SBW per 12 linear meters (40 ft) of row.

Mulches and full-canopy beds tend to encourage the summer generation of SBW to remain in the planting, thereby increasing damage in subsequent years. Cultural practices such as cropping periods that are shorter than three years, plowing under of old beds immediately after harvest, and mowing or removing foliage during renovation (immediately after harvest), all reduce the suitability of these overwintering sites. An insecticide treatment after renovation may also help to reduce the overwintering population.

Consult local Cooperative Extension recommendations for the proper pest management procedures for your area.

Guide To Stages

Stage	Timing	Where to Look
Adults	May	Blossom buds (beat into a white pan); "Clipped" buds indicate adult activity
	Late June through July	On nearby wild hosts: milkweed, goldenrod, mint
Eggs, Larvae, Pupae	May to June	Inside clipped buds

Authored by S. Spangler, A. Agnello, and G. Schaefer. Photo layout by R. McMillen-Sticht. Published through the New York State Integrated Pest Management Program, jointly sponsored by the New York State Department of Agriculture and Markets and the College of Agriculture and Life Sciences, Cornell University. Cornell Cooperative Extension provides equal program and employment opportunities.