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Sap Beetles

Coleoptera: Nitidulidae,

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Description Adults are usually black or brown beetles with an oval to oblong shape. They have clubbed or knobbed antennae and the economically important species typically measure 3–6 mm (0.12–0.24 inch) long. Some sap beetles have short wing covers that do not cover the entire abdomen. Some species have flattened bodies while others are more convex. Many sap beetles are a dull color, sometimes with mottling or spots. One common sap beetle, the picnic beetle [*Glischrochilus quadrisignatus* (Say)], is an attractive shiny black beetle with four yellow-orange bands or spots on the wing covers.

Adult dusky sap beetle (*Carpophilus lugubris* Murray) on muskmelon. (Whitney Cranshaw, Bugwood.org)

Adult picnic beetle [*Glischrochilus fasciatus* (Olivier)] on corn stalk. (Perdue Cooperative Extension Service)

Sap beetle larvae are small, pale or cream colored, maggot-like grubs with a brown head capsule. They are somewhat flattened and measure up to 6 mm (0.25 inch) long. They are active and move quickly when exposed to light.

Common Host Plant(s) Sap beetles are attracted to overripe, damaged, or fermenting fruits and vegetables. Sweet corn and strawberries are frequently attacked, but sap beetles are also found on tomatoes, berries, and melons. They often appear in corn after corn earworm, European corn borer, or birds damage the husk, allowing access to the developing kernels. They may attack soft fruits after infection by various diseases. Sap beetles are also attracted to the sap weeping from wounded trees, especially if it contains fungi and bacteria associated with decay.

Life History Adults and pupae overwinter in plant debris or under logs and emerge in the spring. Adults are attracted to volatile plant compounds from damaged or decaying plant matter and lay eggs there. Larvae feed on decaying plant matter for about 3 weeks and then pupate in the soil. Typically there are 2–3 generations a year depending on the species and the weather. Adults are long-lived and those from both the overwintering generation and successive generations disperse to other areas. Adults attract other adults into an area with pheromones.

Damage Larval feeding in both field and sweet corn directly damages the kernels while adults appear to feed mainly on corn pollen and previously damaged kernels. However, economic damage from sap beetle in corn is fairly limited in comparison to damage by other primary corn pests. Sap beetles feeding on field corn may vector various plant pathogens and mycotoxin-producing fungi, limiting crop yields and quality, but generally the control of sap beetles is not often warranted in field corn. More injury can be tolerated in sweet corn grown for processing than for fresh market.

Sap beetle larvae feeding on corn. (Perdue Cooperative Extension Service)

Strawberry sap beetle larvae [*Stelidota germinata* (Say)] feeding in strawberry. (Natalie Hummel, Louisiana State University AgCenter, Bugwood.org)

Sap beetles can be problematic for pick-your-own strawberry operations. Feeding adults and larvae directly injure ripening fruit and transfer disease pathogens throughout the field. The presence of sap beetle larvae in picked fruit is highly objectionable by customers who complain of “wormy” berries. Also, the presence of aggregating adults may be a general nuisance at roadside stands selling produce.

Distribution Eastern United States and as far west as Colorado.

Cultural Control Sanitation is the key in managing sap beetles regardless of the crop. Harvest ripening produce on a routine basis before it becomes overripe. Frequent picking and removal of damaged or overripe produce may reduce the number of adult sap beetles arriving in the field. This is particularly important in u-pick strawberry fields, where customers may not keep fields thoroughly picked, especially in rainy weather, and discarded fruit is left in the rows. Proper composting is important as decaying plant matter may attract adults into the area, which may begin laying eggs on adjacent, intact produce. Thoroughly remove, destroy, or deeply bury all crop residue in the fall to eliminate potential overwintering sites for the adults.

Buckets of overripe, fermenting fruit placed around field borders can be used to intercept adults flying into the field. Keep in mind that aggregating sap beetles attract more sap beetles, so empty and destroy the contents every 2-3 days to remove sap beetles from the field and prevent them and other pests from breeding in the bucket. Traps buckets are a good way to detect sap beetle populations.

Thresholds Treatments for other corn pests, such as corn earworm, will usually control sap beetles as well. If treating for another, more important pest, check to see if those treatments have also controlled the sap beetles before applying a separate treatment for sap beetles.

Several thresholds are established for sap beetles in large plantings of sweet corn. When silks begin wilting, inspect the tip area on 20 primary ears for sap beetle larvae at five different locations throughout the field on a weekly basis. Treatment is warranted if 2 or more larvae are found per 100 plants **and** there are more than 4 weeks left before harvest. Alternatively, begin scouting at pollen shed and treat when 5% of the ears have sap beetle adults, eggs, or larvae. On commercial farms with a **known history** of sap beetle problems in sweet corn, an insecticide spray should be applied when 50 to 75% of the ears have wilted silks (the stage when sap beetle larvae begin hatching).

For sweet corn in home gardens, apply labeled insecticides to silks every other day beginning at 10% silking and continuing until 90% of silks have wilted and turned brown. Again, treatments for other, more important corn pests will usually control sap beetles as well.

Chemical Control Treat with a registered insecticide. As with all pesticides, follow the label instructions carefully with regards to rates and precautions. For treatment recommendations for sweet corn, see the Commercial Vegetable Production Recommendations for commercial fields or the Home Grounds and Animals Pest Management Guide for home gardens. Sap beetle damage is generally reduced in areas where corn earworm is controlled by insecticides.

Organic/Biological Control Pyrethrins can be applied for sap beetles in sweet corn when populations exceed the thresholds given above. Certified organic growers should always check that an organic method is approved by their certifier. No satisfactory biological controls are commercially available for sap beetles.

Note: Sweet corn varieties with the *Bacillus thuringiensis* genes (BT corn) are still susceptible to sap beetles; **BT corn has no effect on them.** Also, insecticides used for control of caterpillar pests at silking may not control sap beetle infestations. For treatment recommendations for corn sap beetle (*Carpophilus dimidatus*) in stored field corn, see the section for stored grains in the Pest Management Guide to Field Crops.

For Sap Beetles in Strawberries: See the Commercial Vegetable Production Recommendations for pesticide recommendations in commercial fields of strawberries, but insecticide application is limited by the need for frequent picking. Pyrethrins are an organic option for sap beetle control in strawberries. Sanitation is the best control measure for sap beetles in both commercial fields and home gardens. Ripe fruit should be thoroughly picked and removed from the field on a timely basis. No satisfactory biological controls are commercially available for sap beetles in strawberries.