Pepper weevil
(Order: Coleoptera, Family: Curculionidae, Anthonomus eugenii (Cano))

Description:
Adult: Pepper weevil adults are small weevils varying in length from 2.0 - 3.5 mm. The body is arched with a long stout beak, which is typical of weevils. The femora of the front legs has a sharp spur near the end. Adults are dark, ranging in color from dark mahogany to nearly black. The thorax and elytra are covered with small scales. Immature stages: Eggs are oval and white when first deposited. Eggs are laid within the fruit and are seen only if carefully dissected from the fruit. Larvae are typical grub type. The larvae are white to grayish with a yellowish brown head. They lack legs and have few large hairs. First instar larvae are about 1 mm long and last instar larvae reach a maximum of about 5 mm. Pupae somewhat resemble the adults except the wings are not fully developed, they have large setae (hairs) on the thorax and abdomen, and they are white to yellowish.

Biology:
Life cycle: Adults can be long lived and overwinter in an active state; thus, survival is high only if food is available, and this limits its populations in Georgia. Eggs are deposited preferentially into flower buds or small fruit, but larger fruit are utilized when smaller hosts are limited. The female chews an egg cavity into the bud or fruit, places a single egg into the cavity, and seals the puncture with a light brown fluid that hardens and darkens. This results in the characteristic oviposition ‘wart’ seen with many weevils. Generally a single individual develops within a flower bud or small fruit, but several weevils may develop within larger fruit. Females lay 5-7 eggs per day and eggs hatch in 3-5 days. Larvae feed inside the flower bud or fruit and develop through 3 instars in about 12 days. The pupal stage also occurs within the fruit and requires about 5 days. The adult emerges within the bud or fruit and chews a circular exit hole.
Seasonal distribution: Pepper weevil should not occur in high densities in Georgia during the spring production season, but can be introduced with transplants and populations can build rapidly. The fall production season is typically under greater potential for infestation, particularly if peppers are available through the summer, providing a reproductive host to bridge the gap to the fall crop. Lack of peppers in the winter causes population declines, but pepper weevil can overwinter on weed hosts (particularly nightshade) in mild winters.

Damage to Crop: Pepper weevil is a pest of pepper only (although it has recently been suspected to attack eggplant). Prior to the presence of fruiting structures, adults will feed on stems and leaves, but generally cause no significant damage. On flower buds, adult and larval feeding causes bud drop. Fruit drop is also common when small fruit are attacked and this is the most visible sign of an infestation. Heavy infestations are capable of causing near 100 percent loss of fruit. When larger fruit are attacked, the core will usually turn brown and may become moldy. The stem of infested fruit generally turns yellow and the fruit will prematurely turn red or yellow at the base. However, weevils can also develop within large fruit with little external indication of infestation, representing a threat of harvest contamination and
rejection of produce shipments.

**Management:** Because pepper weevil does not diapause and has a limited host range, thorough sanitation can have a large impact on weevil populations. A longer ‘host free’ period is required in the winter when the colder weather allows for longer adult survival. Prior to development of fruiting structures this pest is of little concern; however, it is highly recommended that weevil-free transplants be used. If transplants are purchased from an area with pepper weevil, ensure that adults are not present and that fruiting structures are not present. If pepper weevil becomes established in a crop, scheduled insecticide applications become necessary, as the immature stages are protected within the buds and pods and only the adult stage can be controlled. If a calendar spray schedule is used for pepper weevil, it usually begins at first flowering to prevent egg laying in fruiting structures. The main tactic for controlling pepper weevil is to prevent carryover of infested pods from field to field or from season to season. Regional eradication of pepper weevil has been shown to be possible and can be very effective in reducing control costs over the long term.