



UNIVERSITY OF GEORGIA  
EXTENSION



# Plum Curculio

## An Incessant Pest of Peaches

Brett R. Blaauw and Tzu-Chin Liu



Figure 1. Plum curculio adult.

**Plum curculio**, *Conotrachelus nenuphar* (Herbst), is a key insect pest of peaches in the Southeast region of the United States. It is a snout beetle native to North America and is found east of the Rocky Mountains in the United States and Canada.

Adult plum curculios are small, about 1/4 inch (4-6 millimeters) long, brownish-black snout beetles, mottled with lighter gray or brown markings (Figure 1). Their backs are roughened and bear two prominent humps and two smaller humps. The larvae can be found feeding and tunneling within the developing fruit, usually boring to the pit. The larvae are yellowish-white, legless, brown-headed grubs, about 3/8 inch (6-9 mm) long when fully grown (Figure 2).



## Biology

Plum curculio overwinters as an adult in ground litter or other protected places, both in and around orchards, particularly in nearby woods or fence rows. Overwintered adults become active when mean temperatures reach 50-60 °F for three to four days, and they begin moving toward orchards when the maximum temperature reaches 70 °F for two or more days. This series of temperature events often takes place shortly before or as peaches bloom.

Female plum curculio begin depositing eggs in early spring in the Southeast. Beginning at shuck split, they deposit eggs singly in holes they create in the fruit. The egg hatches in about five days and the larva feeds in the fruit for 8-22 days. The full-grown larva tunnels out of the peach, enters the soil, and transforms into a pupa. The first-generation adults usually emerge about four weeks after larvae enter the soil. The complete life cycle, from egg to emerged adult, requires five to eight weeks, depending upon climatic conditions.

There are two generations of plum curculio in Georgia each season. The overwintering adults emerge and begin migrating into the orchards in March around shuck split. The first within-field generation emerges from the soil in June and begin attacking the maturing fruit. These are the larvae that are often found in July-harvested fruit. The second generation emerges from the soil in mid-August. Both first- and second-generation adults feed on foliage or fruit until cool weather, when they seek overwintering sites.

## Symptoms and signs

Plum curculios have a wide host range, but adults attack primarily pome and stone fruits such as apples, pears, peaches, and plums. Adult damage consists of tiny circular feeding punctures or small, crescent-shaped oviposition (egg-laying) wounds made by females, which cause conspicuous scarring and malformation as the fruit develops. Once a female finds a suitable host, she will slice a curved slit underneath the skin of the fruit where she will deposit her eggs. As the fruit continues to grow, this deposition causes a distinctive crescent-shaped scar on the outside of the fruit (Figure 3), which may be covered by an area of “shiny” (white) fuzz.

The larvae tunnel and feed in developing fruit, usually boring to the pit. Most peaches infested by plum curculio early in the season drop prematurely. Female plum curculios will deposit eggs whenever fruit is available, but they prefer small, young peaches or peaches within two weeks of harvest. Larger peaches, infested after pit hardening begins, generally stay on the tree until ripe, but these wormy fruit are of no value due to the flesh damage and/or presence of the grubs within the fruit.



Figure 2. Plum curculio larva inside a peach.



Figure 3. Characteristic crescent-shaped scar on a peach due to the egg-laying behavior of plum curculio.

# Management

## Chemical control

Plum curculio's lengthy emergence and egg-laying periods mandate diligent control, but existing control programs work well, and plum curculio is seldom damaging in well-managed orchards. Adult populations are suppressed in the spring by well-timed applications of effective insecticides. These sprays provide a protective barrier to prevent overwintering adults from laying first generation eggs. Sprays for plum curculio control are normally initiated between petal fall and shuck split. Two or three additional sprays at 10- to 14-day intervals are needed to assure control of the overwintered population. Insecticide sprays targeting the overwintered plum curculio generation also provide control of oriental fruit moth and suppress stink bugs moving into the orchard. If the egg-laying adults are not effectively controlled, additional applications will be necessary to prevent wormy fruit from second-generation larvae that mature from early June through harvest. In infested orchards, special attention should be given to mid- and late-season cultivars by applying insecticide sprays at six, four, and two weeks before harvest.

Trapping and degree day (DD) calculations help refine management of plum curculio. Once maximum daily temperatures reach 70 °F for two consecutive days from February to early March, growers can begin keeping track of and accumulating growing degree days (DD) using a base temperature of 50 °F.

- At pink stage, position two to four pyramid traps (Figure 4) per block in the outer row of peach trees adjacent to woodlots or fence rows.
- At petal fall, begin checking pyramid traps twice weekly for plum curculio adults. At the same time, inspect 100 fruit along the orchard perimeter for plum curculio feeding damage.
- After accumulating 50 to 100 DD (approximately shuck split), growers should expect to start catching plum curculio adults in pyramid traps or see the first feeding damage on fruit.
- An insecticide application is recommended if the traps exceed 0.1 adults per trap per day or if fruit damage exceeds 1%.
- Adult emergence can also be monitored by jarring peach trees along the perimeter over a ground sheet or beating tray. Jar trees in the early morning when the plum curculio adults are less active and more easily dislodged.



Figure 4. A modified Tedder's trap, also known as a black pyramid trap, used for monitoring adult plum curculio activity in orchards.

Adults continue to migrate into the orchard from 50 to 500 DD, most of April in central Georgia, so this is the period when fruit should be protected by insecticide sprays. Summer adults emerge from the soil after 1,000 DD (from sometime in late May through harvest of late-ripening cultivars). Rotate highly effective materials like phosmet, thiamethoxam, clothianidin, or indoxacarb with pyrethroids, such as esfenvalerate.

## Nonchemical control

Keeping the orchard floor closely mowed after harvest affords less protective cover to adults that overwinter in the orchard. Destroying nearby wild plum thickets, abandoned peach blocks, and other alternate hosts is suggested to reduce plum curculio migration into orchards from outside sources.

## *References:*

- Blaauw, B., Brannen, P., Lockwood, D., Schnabel, G., and Ritchie, D. (Eds.) (2020). Southeastern Peach, Nectarine and Plum Pest Management and Culture Guide. University of Georgia Cooperative Extension Bulletin 1171. Retrieved from <https://extension.uga.edu/publications/detail.html?number=B1171>
- Akotsen-Mensah, C., Boozer, R., & Fadamiro, H. Y., (2010). Field evaluation of traps and lures for monitoring plum curculio (Coleoptera: Curculionidae) in Alabama Peaches. *Journal of Economic Entomology* 103, 744-753.
- Akotsen-Mensah, C., Boozer, R. T., Fadamiro, & H. Y. (2012). Influence of Orchard Weed Management Practices on Soil Dwelling Stages of Plum Curculio, *Conotrachelus nenuphar* (Coleoptera: Curculionidae). *Florida Entomologist* 95, 882-889.
- Jenkins, D., Cottrell, T., Horton, D. L., Hodges, A., & Hodges, G. (2006). Hosts of plum curculio, *Conotrachelus nenuphar* (Coleoptera: Curculionidae), in central Georgia. *Environmental Entomology* 35, 48-55.
- Johnson, D. T., Mulder, P. W., McCraw, B. D., Lewis, B. A., Jervis, B., Carroll, B., & McLeod, P. J. (2002). Trapping plum curculio *Conotrachelus nenuphar* (Herbst) (Coleoptera: Curculionidae) in the southern United States. *Environmental Entomology* 31: 1259– 1267.
- Leskey, T. C., & Wright, S. E. (2004). Monitoring plum curculio, *Conotrachelus nenuphar* (Coleoptera: Curculionidae), populations in apple and peach orchards in the mid-Atlantic. *Journal of Economic Entomology* 97(1): 79-88.

The permalink for this UGA Extension publication is [extension.uga.edu/publications/detail.html?number=C1224](https://extension.uga.edu/publications/detail.html?number=C1224)