

Controlling Plum Curculio

Plum curculio, *Conotrachelus nenuphar* (Herbst), is a native American insect found east of the Rocky Mountains in the United States and Canada. Its original hosts included wild plum, crab apple, cherry, and similar plants. It is the key fruit-attacking insect pest of peaches and other stone fruit in the southeastern United States. Plum curculio (PC) is also a pest of pome fruit and blueberries.¹

Adult PC's (Figure 1) are small brownish-black snout beetles, about 1/4 inch (4-6 mm) long, mottled with lighter gray or brown markings. The mouthparts are at the end of a moderately curved snout that is about one-fourth the length of the body. Their backs are roughened and bear two prominent humps and two smaller humps. Larvae are slightly curved, yellowish-white, legless, brown-headed grubs, about 3/8 inch (6-9 mm) long when fully grown (Figure 2).



Figure 1



Figure 2

The adult becomes active in the early spring when it flies to trees and feeds on buds, flowers and newly set fruit over a five to six week period. The female adult cuts a hole in the fruit with her mouthparts and hollows out a small cavity then turns and deposits an egg in the cavity. She then cuts crescent shaped slit which extends beneath the egg so as to leave the egg in a flap of flesh. Injury will appear as a 1/8 inch crescent shaped cut on the fruit. This prevents the egg from being crushed by the rapidly developing fruit. This results in an appearance called cat facing of the fruit. After about five days, the larvae will hatch and burrow into the fruit. The larva is a legless grayish white grub with a brown head. Its length will be about 1/3 inch when full grown.²

Control of this pest requires close observation and accurate timing of several different treatments and cultural practices throughout the year. A vibrant, healthy, growing tree can resist infestation better than a malnourished and weak tree. Therefore, maintain the health of the tree by fertilizing, mulching, and watering according to our *Planting & Maintenance Guide for Fruits, Nuts, and Berries*.

PC overwinter as adults in ground litter or the soil and become active in the spring following several days of either a mean temperature above 15.5°C (60°F) or maximum temperatures above 24°C (75°F). This time period normally coincides with the blossom period of fruit. If temperatures drop and conditions become unfavorable the adults may return to hibernation sites. Although the emergence period for PC lasts for several weeks, 40-60% of the total emergence occurs on a single day³.

Late Winter to Early Spring: The adult PC emerges from its overwintering site when temperatures average above 15° C (60° F) or we have a warm period above 22° C (72° F). The PC flies to the trees where they feed on the buds, flowers, and newly set fruit. In feeding, the adult cuts a hole in the skin of the fruit and hollows out

¹ University of Minnesota Extension: Plum Curculio

² University of Kentucky, ENTFACT 202 Plum Curculio

³ Cornell University, Integrated Pest Management, Plum Curculio

a cavity. At this time, as often as possible in early morning, spread sheets on the ground under the tree and shake the tree to knock the PC to the ground. Quickly gather up the sheets and submerge them in soapy water to kill the PC. This is also a good way to monitor how much of a problem the plum curculio is that season.

The adult begins laying eggs as soon as fruit is formed on the tree – when the fruit is barely visible. If it is necessary to spray, choose an effective organic insecticide. **Take Down Garden Spray** is an organic-approved control, however, in order to protect the bees, **DO NOT SPRAY DURING FULL BLOOM** or whenever bees are present!

Another option is to spray **Kaolin Clay**, which leaves a coating on the surface of the fruit and leaf that is both distasteful and an irritant to the PC.

SPRAY Take Down Garden Spray: AT PETAL-FALL: When 75% of the flower petals have fallen (approximately 5 days after full bloom)

AT SHUCK SPLIT: The shuck is the papery covering, or calyx, that covers the baby fruit. Shuck split occurs after the fruit has barely formed and the shuck has split open. (14 days after full bloom)

ONE MORE SPRAY may be necessary, 7 – 14 days after Shuck Split.

HOW TO SPRAY KAOLIN CLAY: Mix the **Kaolin Clay** as directed in a pump-up sprayer, adding a little mild soap as a spreader/sticker. Keep shaking the sprayer as you spray. **Kaolin Clay** is a “Wettable Powder” that must be kept agitated in order to remain suspended in the water. If the white film on the tree fades due to rain, reapply. Spray early morning or late evening only. The goal is to maintain this coating through harvest.

SPRING – SUMMER: If eggs were laid in the fruit, larvae develop over 2 – 4 weeks, crawl out of the fruit, and drop to the ground (if the fruit hasn’t already fallen to the ground). Pick up and destroy fruit as soon as it falls. The larvae tunnel into the ground and construct an earthen cell 1 – 3 inches below the surface. They pupate and may develop into adults within 3 – 4 weeks, becoming the second generation PCs of the year. If it is a dry year, there may only be one generation. Second generation adults emerge in July & August, feeding on foliage. If detected, use the same methods as in late winter to reduce PC numbers again.

FALL: Spray **Beneficial Nematodes** to help control larvae in the soil. Nematodes are most effective against the larval stage rather than emerging adults. Clean up debris around the trees (fallen leaves, weeds, brush piles, etc.) and mow closely in areas nearby to reduce the overwintering sites of the adult plum curculio. Apply nematodes annually after leaf drop in early fall. This has been perhaps the most effective long-term control for us.⁴

Native trees, such as the Crabapple or the Mexican Plum, may host Plum Curculio. Consider treating soil around trees with nematodes as listed above.

⁴ National Center for Biotechnology Information, U.S. National Library of Medicine. Susceptibility of the Plum Curculio, *Conotrachelus nenuphar* to Entomopathogenic Nematodes.