PennState Extension

Tree Fruit Insect Pest - Dogwood Borer

Dogwood borer, Synanthedon scitula, was found for the first time in the 1980s as a common pest in the burr knots of apple trees.

ARTICLES | **UPDATED: JANUARY 26, 2016**

Larvae are nearly white to light pink with a deep brown head capsule, and reach ½ inch at maturity. Photo by G. Krawczyk.

Dogwood borers were first found in clonal rootstocks in northern Virginia, Pennsylvania, and the rest of the Northeast.

Description

Adults are typical black and yellow clear-winged moth similar to but smaller than adult lesser peachtree borer and peachtree borer, with a wingspan of only ¾ inch. Females have a wide yellow band on the fourth abdominal segment, compared to a much narrower band on the same segment of the males. Larvae are nearly white to light pink with a deep brown head capsule, and reach ½ inch at maturity. They may take 13 to 22 months to complete larval development. Larvae pupate in galleries in a cocoon made up of silken thread and covered by a layer of its reddish frass. Pupal cases often protrude slightly from the tree and remain visible for up to a year after the adults have emerged.

Feeding inside burr knots

Dogwood borers feed on a wide variety of forest trees. On apple, larvae feed inside burr knots, which usually develop on the exposed aboveground portion of clonal rootstocks. Malling and Malling-Merton rootstocks have a tendency to develop burr knots, enhanced by low light conditions around the trunk due to shading by weeds, low limbs, suckers, opaque tree guards, and shallow planting. These aggregations of partially developed root initials occur in clusters at or below the graft union. Reddish frass on the surface of a burr knot is a visible sign of an active infestation by dogwood borer.

Larvae overwinter in a hibernaculum in one of their galleries and emerge early in the spring to continue feeding. Pupation lasts about 25 days and begins in early June. Adults emerge over a period of about three months, beginning in June. Mating and egg laying occur within a few days of emergence. Females lay eggs on or near burr knots and are particularly attracted to trees with infested burr knots. Eggs hatch after 8 to 9 days and larvae bore into the tissue between the root initials and begin feeding. Dogwood borer almost never enter healthy bark or pruning wounds in apple trees.

Feeding is initially confined to the burr knot, but it sometimes spreads to healthy bark outside it. Feeding in the burr knot itself does little or no damage to the tree, while feeding below the bark is much more destructive and may eventually girdle the tree. Although these borer injuries can kill trees, several consecutive years of infestation are often needed before the tree shows decline. Persistent infestations over several years can contribute to a slow decline of the tree and reduced yields.

Monitoring

Dogwood borer is monitored by checking under tree guards in the spring to locate active infestations. Pheromone traps can be used to estimate the timing of peak flight. These traps should be placed at about 4 to 6 feet above the ground for optimal catch. Placement much higher or lower in the tree may cause as much as a fivefold decrease in catch.

Cultural Management

Although NAA can be used to control burr knots, this is not desirable because it forces the larvae to feed into healthy cambium at the edges of burr knots. Also, other borers, such as the American plum borer, may establish in the dead burr

knots. Rootstocks M.9, M.9/MM.106, M.26, MM.106, and MM.111 show some difference in susceptibility, but only MM.111 has a considerably lower infestation level. Undiluted white latex paint applied by brush to the lower trunk before egg laying will significantly reduce infestations. Tree guards should not be left on longer than necessary.

Chemical Management

Dogwood borer can be controlled with trunk applications of a long-residual insecticide. Thorough coverage of burr knots and surrounding areas of the lower trunk in single sprays timed from pink stage through late June should provide excellent control. Mating disruption product Isomate DWB is also very effective in reducing the numbers of dogwood borer larvae although multiyear treatment need to be applied for the best efficacy.

Specific chemical recommendations for home gardeners are in Fruit Production for the Home Gardener , and recommendations for commercial growers are in the Penn State Tree Fruit Production Guide .